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Bulletin of the
British Ornithologists' Club

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Edited by
Dr. J. F. MONK

Volume 103 No. 1 March 1983

FORTHCOMING MEETINGS

Tuesday, 17 May 1983, in the Senior Common Room, South Side, Imperial College, Prince's Gardens, S.W.7 at 6.30 p.m. for 7 p.m., **Dr D. W. Snow** will speak on *Hummingbirds in the Colombian Andes*. These wishing to attend should send their acceptance with a cheque for £6.40 a person to reach the reach the Hon. Secretary at 2 Chestnut Lane, Sevenoaks, Kent TN13 3AR (telephone Sevenoaks (0732) 450313) not later than first post on Thursday, 12 May.

Tuesday, 5 July 1983, in the Senior Common Room, **SHERFIELD BUILDING,** Imperial College, S.W.7 ot 6.30 p.m. for 7 p.m., **Mr Paul Goriup** will speak on *Bustards*. He will be speaking on bustards generally and, more particularly, on species that he has studied in the field, which include the Great Bustard *Otis tarda* and the Houbara Bustard *Chlamydotis undulata*. Those wishing to attend should send their acceptance with a cheque for £6.40 a person to reach the Hon. Secretary (address above) not later than first post on Thursday, 30 June.

PLEASE NOTE THAT THIS IS NOT OUR USUAL VENUE. THE SHERFIELD BUILDING IS ON THE **WEST** SIDE OF EXHIBITION ROAD IN THE MAIN BLOCK OF IMPERIAL COLLEGE AND LIES A SHORT DISTANCE NW OF THE CARILLON TOWER.

Tuesday, 20 September 1983, at Imperial College S.W.7. it is hoped that **Mr George A. Smith, Jr.,** will speak on *Parrots*.

November 1983 — partictulars to be announced. This will be the 750th Meeting of the Club.

Tuesday, 10 January 1984 Mr M. K. Swales will speak on The Denstone College Expedition to Inaccessible Island (South Atlantic).

Many copies of the *Bulletin* must get thrown away annually by Members, copies which the Club would welcome. Please send all unwanted copies, and ask your Executors to do the same, to the Hon. Treasurer at 53 Osterley Road, Isleworth, Middlesex TW7 4PW at any time. Postage will be refunded if requested.

COMMITTEE

D. R. Calder (*Chairman*)
R. E. F. Peal (*Hon. Secretary*)
Dr. J. F. Monk (*Editor*)
R. A. N. Croucher
P. J. Conder, O.B.E.
B. Gray (*Vice-Chairman*)
Mrs. D. M. Bradley (*Hon. Treasurer*)
J. G. Parker
Revd. G. K. McCulloch, O.B.E.

Bulletin of the
BRITISH ORNITHOLOGISTS' CLUB

Vol. 103 No. 1 Published: 21 March 1983

ANNUAL GENERAL MEETING

The 1983 Annual General Meeting of the British Ornithologists' Club will be held in the Senior Common Room, South Side, Imperial College, Prince's Gardens, London, S.W.7 at 6 p.m. on Tuesday 17 May 1983.

AGENDA

1. Minutes of the last Annual General Meeting (see *Bull. Brit. Orn. Cl.* 102: 43).
2. Report of the Committee and Accounts for 1982.
3. The *Bulletin*.
4. Election of Officers.
   The Committee proposes that:—
   (a) Mr. B. Gray be elected Chairman *vice* Mr. D. R. Calder, who retires on completion of his term of office and is ineligible for re-election.
   (b) The Reverend G. K. McCulloch, O.B.E., be elected Vice-Chairman *vice* Mr. B. Gray, who retires on completion of his term of office and is ineligible for re-election.
   (c) Mrs. D. M. Bradley be re-elected Honorary Treasurer.
   (d) Mr. R. E. F. Peal be re-elected Honorary Secretary.
   (e) Mr. S. A. H. Statham be elected a member of the Committee *vice* Mr. J. G. Parker, who retires by rotation.
   (f) Mr. D. Griffin, M.A. be elected a member of the Committee in the event of the Reverend G. K. McCulloch being elected Vice-Chairman.
5. Any other business of which notice shall have been given in accordance with Rule (7).

By Order of the Committee,
RONALD E. F. PEAL
Honorary Secretary.

REPORT OF THE COMMITTEE FOR 1982

In 1982 six Meetings were held in the Senior Common Room, Imperial College in Prince's Gardens, S.W.7, attended by 127 Members and 69 guests, and a visit to Sevenoaks in October raised the total attendances to 204. This figure is below the numbers in the preceding 3 years but well up to those in the previous years of the last decade. The immediate decline may be attributed, in part at least, to the frequent railway strikes in the first 7 months of the year, so that the January and July Meetings had to be postponed at very short notice to June and December respectively and then the London Underground had a strike when the Meeting in June was held. Imperial College suits us well but unfortunately the charges for meals were raised in February and September by an overall 24.9% and changes in their conditions have given rise to increased insurance costs for the Club.

It is with deep regret that the Committee reports the death of Mr C. W. Benson, O.B.E., M.A. (Member 1937-1982, Editor 1969-1974), Miss C. E. Godman, O.B.E., (Member 1946-1982), Mr D. W. K. Macpherson (Member 1934-1982) and Mr C. W. G. Paulson-Ellis (Member 1932-1982). They were all Members of long standing and both Mr Benson and Miss Godman (a daughter of F. D. Godman, F.R.S., who became a Member of the Club in its first session) contributed their reminiscences to the *Bulletin* Vol. 100 No. 1. Mr Benson assisted only just over a year before his death in editing the

Bulletin, whilst the Editor was abroad, with the high degree of skill and accuracy for which he was widely known.

During the year there were 37 new Members, 10 Members resigned and 7 were struck off under Rule (4). It is gratifying to note the excellent number of new Members and at the end of the year the paid-up membership had risen to 399 (224 U.K. and 175 overseas). That this was not greater was owing to 19 Members failing to pay their subscriptions at the year end, more than in previous years, although it is hoped that some of these will yet pay their arrears. There was no special publicity to draw in new Members in the year in view of the work done in 1981 and publicity for new *Bulletin* subscribers was limited to mailings of over 300 leaflets to institutions in America and Japan. There were 14 additions in 1982 to the list of subscribers but more than usual ceased to renew and the subscribers at the close of the year numbered 175 (37 U.K. and 138 overseas).

During the year Mr S. A. H. Statham, as Assistant Honorary Treasurer, took over the handling of subscriptions to the *Bulletin* by non-members. This is not an Office within the terms of the Rules, so he has been nominated by the Committee for election at the next Annual General Meeting to membership of the Committee. Chattels bequeathed absolutely to the Club by the late Herbert Stevens sold during the last year realized £2156.94 which has been credited to the Stevens Bequest Fund. In addition, his Proof Copy of his book "Through deep defiles to Tibetan uplands" (H. F. & G. Witherby 1934) was presented to the British Ornithologists' Union to be held by them with the Balfour Bequest at the Linnaean Society.

Vol. 102 of the *Bulletin* ran to 158 pages and delay between date of receipt of a paper and its publication was maintained at about 9 months or less. The number of papers and their geographical coverage, as well as the worldwide scatter of authors, were comparable with those of recent years. Printing charges rose by 12½% in July.

Arrangements have been made by the Hon. Secretary for despatching the *Bulletin* by Bulk Air Mail to Europe and to almost all other countries by Accelerated Surface Post, beginning with the March 1983 issue, at no extra cost to the recipients. The Hon. Secretary would like to hear from overseas recipients whether the new arrangements prove preferable to the existing ones.

Vol. 48, which had been out of print for many years, has been reprinted together with some other issues, so that runs can now be supplied back to Vol. 37 (1916-17). The Club would benefit very considerably if Members, particularly senior members, or their executors, who do not wish to keep old copies of the *Bulletin* would offer them to the Club.

The Accounts for 1982 are not yet available. They will be tabled at the Annual General Meeting and published subsequently in the *Bulletin*: Members wishing copies previously will be sent them on application to the Honorary Treasurer.

The seven hundred and forty-third Meeting of the Club was held in the Senior Common Room, South Side, Imperial College, London S.W.7 on Tuesday, 23 November 1982 at 7 p.m. The attendance was 22 Members and 9 guests.

Members present were: D. R. CALDER (*Chairman*), P. J. BELMAN, K. F. BETTON, Dr. G. BEVEN, K. D. BISHOP, R. A. N. CROUCHER, Sir HUGH ELLIOTT, A. GIBBS, B. GRAY, D. GRIFFIN, R. H. KETTLE, J. KING, Dr. A. G. KNOX, Revd. G. K. MCCULLOCH, Dr. J. F.

Monk, P. J. Oliver, R. E. F. Peal, Revd. Dr. W. Serle, G. A. Smith Jnr., S. A. H. Statham, K. V. Thompson and C. E. Wheeler.

Guests present were: Miss C. Ash, J. Beesley, Miss E. Butterworth, Dr. A. W. Diamond, Mrs. I. McCulloch, Mrs. P. J. Oliver, Mrs. E. Peal, Mrs C. E. Wheeler and Miss M. Zunz.

Dr. A. W. Diamond spoke on "Birds of the Western Indian Ocean Islands". He showed slides of some birds and, more particularly, of important habitats on Madagascar, the Mascarene Islands, the Comoros, Aldabra and Seychelles. He explained the effects of the habitats of each island or group and the changes wrought in them in historic times upon its avifauna. The excellent address was followed by a lively discussion.

The seven hundred and forty-fourth Meeting of the Club was held in the Senior Common Room, South Side, Imperial College, London, S.W.7 on Tuesday 13 December 1982 at 7 p.m. The attendance was 18 Members and 28 guests.

Members present were: D. R. Calder (*Chairman*), K. F. Betton, Mrs. Diana Bradley, S. Cramp, P. J. Conder, R. A. N. Croucher, J. H. Elgood, D. J. Fisher, D. Griffin, P. Hogg, J. King, Dr. A. G. Knox, Revd. G. K. McCulloch, J. G. Parker, R. E. F. Peal, R. C. Price, S. A. H. Statham and M. P. Walters.

Guests present were: D. Bradley, Miss S. P. F. Dixon, A. Farrar, Miss J. Fenton, T. M. Gullick, D. Hale, Mr. and Mrs. K. J. Hall, H. Hawker, M. Henry, J. A. Hunt, Mrs. J. King, T. Manship, B. A. E. Marr, Mrs. I. McCulloch, Dr. Amicia Melland, Mr. and Mrs. R. Newman, J. Osborne, Mrs. Monique Parker, Mrs. E. Peal, Mrs. R. C. Price, Miss K. Ross, K. D. Shaw, I. Templeton, Mr. and Mrs D. Tomlinson and D. M. Wilson.

Mr. T. M. Gullick gave an address on "Birds in Central Spain". He described the major physical features and vegetation in an area from Madrid to the Guadalquivir and extending westward to Caceres and the birds to be found there. He dealt with avian population changes in the area and related them to changes and numbers in the rest of Spain. This talk, of great interest, was followed by a number of questions and by discussion.

A *Pyrenestes* from northwestern Tanzania

by S. N. Stuart

Received 24 April 1982

While visiting the National Museum of Kenya (NMK) in Nairobi in late September 1981, I found a skin of an unidentified seed-cracker, *Pyrenestes* (Estrildidae). It was collected by Mr I. H. Dillingham in Munene Forest, near Bukoba, West Lake Region, in northwestern Tanzania (1° 19′ S, 31° 36′ E), on 22 February 1962. Britton (1980) makes no mention of any *Pyrenestes* species occurring in this region of Tanzania. The specimen, sexed as a female, was not immediately identifiable, and was therefore loaned to the British Museum (BMNH) at Tring where I was able to compare it with specimens of *P. minor* and *P. ostrinus* (Table 1).

It is evident that both species show considerable variation in size and the subspecies are probably best considered polymorphisms rather than true subspecies. This is certainly true for *P. minor vincenti* (Traylor 1968). In *P. ostrinus* the subspecies are also somewhat artificial divisions of what is in fact a clinal variation in size. The subspecies of *P. minor* and *P. ostrinus* were defined by Chapin (1924) on morphometric criteria. He noted that the smallest-billed *Pyrenestes* were generally collected from continuous forests in areas of high rainfall, whereas the large-billed specimens often came from outlying gallery forests where, on the edges, there may be a restricted diet of hard seeds. Clearing of forests might have affected the distributions of large and small forms of both species, giving rise to the complex patterns seen today (see Hall & Moreau 1970). There is much sympatry between birds of

TABLE 1

Measurements (mm) of female *Pyrenestes minor* and *P. ostrinus.*
(Means are enclosed in brackets)

	Bill length	Bill depth	Bill width	Wing	Tarsus	Tail
			Bukoba specimen			
n=1	16.7	12.4	12.1	67.0	19.9	58.6
			P. minor minor			
n=4	15.5–17.0 (16.2)	10.4–12.1 (11.0)	9.5–11.5 (10.2)	59.0–61.0 (60.0)	18.2–19.3 (18.7)	55.3–64.9 (58.2)
			P. minor vincenti			
n=1	17.5	13.4	13.4	63.0	20.4	62.4
			P. ostrinus rothschildi			
n=8	16.2–18.5 (17.4)	11.5–12.9 (12.1)	11.7–12.9 (12.3)	61.0–65.0 (62.3)	18.0–20.2 (19.0)	47.4–55.1 (50.9)
			P. ostrinus ostrinus			
n=3	19.0–20.4 (19.7)	14.6–17.3 (16.4)	13.9–16.2 (15.1)	62.0–69.0 (66.0)	19.1–20.2 (19.8)	48.7–55.4 (52.6)
			P. ostrinus frommi			
n=1	23.5	19.3	18.1	70.0	22.1	56.9

different sizes in both *ostrinus* and *minor* (Traylor 1968). Consequently White (1963) does not recognise the various subspecies of *ostrinus* and *minor* based on size differences and, indeed, regards *ostrinus* and *minor* themselves as conspecific, uniting them also with *P. sanguineus.*

The Bukoba specimen appears to be closest to *P. o. rothschildi* (the smallest of the *ostrinus* forms) on all measurements, except for the long tail, which is more characteristic of *minor.* In colouration it is indistinguishable from female *ostrinus.* The red of the face extends to the nape and chest, unlike female *minor.* The dark olive belly, back and wings are also characteristic of *ostrinus,* the female *minor* being much paler.

On distributional grounds, the Bukoba specimen is more likely to be *ostrinus,* this species being recorded only 200 km to the north on the Sese Islands, in Lake Victoria, Uganda. The nearest localities for *minor* are some 900 km to the southeast. Mr Dillingham informs me that when he sent the specimen to the Nairobi Museum it was identified as a *Pyrenestes,* but with no specific identification. W. Hay (pers. comm. to I. H. Dillingham) has seen *Pyrenestes* on several occasions in Munene Forest, and also in the Rubeho Forest Reserve (1° 24′ S, 31° 45′ E), about 8 km south of Bukoba. Hay notes that all the birds he saw were brownish; birds with black bellies and backs, characteristic of the male *ostrinus,* were never seen. He therefore believed these Bukoba birds to be *minor.*

I suggest that for the time being the specimen collected by Dillingham at Bukoba be considered *ostrinus,* on the basis of both size and colouration. I draw attention, however, to the long tail of Dillingham's specimen (which is a *minor* characteristic) and to Hay's field observations. The matter cannot be resolved until a male specimen is collected from this area. It is possible that the Bukoba birds are intermediate between *ostrinus* and *minor,* lending support to White's (1963) treatment of *Pyrenestes* as one polytypic species.

Acknowledgements: Mr. G. R. Cunningham-van Someren kindly afforded me facilities at the NMK, as did Mr. I. C. J. Galbraith at the BMNH, Tring. Mr. Cunningham-van Someren also loaned the *Pyrenestes* specimens in Nairobi to the BMNH for my attention. I am grateful to Mr I. H. Dillingham for answering various questions and for contacting Mr W. Hay on my behalf. Mr C. W. Benson and Dick Watling made constructive comments on an earlier draft of this note.

References:
Britton, P. L. (ed.) 1980. *Birds of East Africa*. EANHS: Nairobi.
Chapin, J. P. 1924. Size-variation in *Pyrenestes*, a genus of weaver-finches. *Bull. Amer. Mus. Nat. Hist.* 49: 415–441.
Hall, B. P. & Moreau, R. E. 1970. *An Atlas of Speciation in African Passerine Birds*. British Museum (Nat. Hist.): London.
Traylor, M. A. 1968. Genus *Pyrenestes*. In: *Checklist of Birds of the World*, Vol. 14 (ed. R. A. Paynter, Jr.): 318–321. Museum of Comparative Zoology: Cambridge, Massachussets.
White, C. M. N. 1963. *A Revised Check List of African Flycatchers*, etc. Department of Game and Fisheries: Lusaka.

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Range extensions of Colombian birds as indicated by the M. A. Carriker Jr. collection at the National Museum of Natural History, Smithsonian Institution.

S. L. Hilty and W. L. Brown

Received 26 June 1982

Melvin A. Carriker Jr. collected about 23,000 specimens in western Colombia between 1941 and 1953 for the National Museum of Natural History, Smithsonian Institution (USNM). Although the late Alexander Wetmore studied parts of this collection in conjunction with his work on the birds of Panama and published on some of the new subspecies and more significant distributional records contained therein, this important series of specimens has otherwise received little attention. As it contains a wealth of new range extensions and other distributional information, we have summarized this data here.

All the specimens in this collection (with data on breeding condition) are listed in Carriker's field journals, now bound in 3 volumes and housed at USNM. These greatly facilitated the plotting of distributional data. When we noted an extension of range for a particular species, the specimens were then checked in the museum collection to confirm the identification. We found noteworthy extensions of range for the 256 species detailed here, 86 of which are recorded for the first time from the Serranía (hereafter Snía.) de Perijá in Colombia. Two species are the first Colombian records:- the Perija Thistletail *Schizoeaca perijana* and the migrant Blue Grosbeak *Guiraca caerulea*. The Blue Grosbeak record is also the first for South America.

Carriker's field journals were made available to R. A. Paynter, Jr., and thus geographic details for all 99 of his collecting stations for the USNM series may be found in the '*Ornithological Gazetteer of Colombia*' (R. A. Paynter, Jr. & M. A. Traylor Jr. 1981. *Mus. Comp. Zool. Harvard*). These stations were selected systematically by Carriker and provide information on the distribution in many areas where little was known previously. They are listed numerically in Table 1, along with their Department or political division and the appropriate page number from the *Gazetteer*. In the species list which then follows, these localities are designated by the number in this list, 2 or more often being quoted, especially where they "fill in" a large, formerly blank area on the map. The range extensions refer to the species unless the subspecies is indicated in brackets.

The data reported here were obtained during the course of work on a forthcoming guide to Colombian birds. We are indebted to Dr. Storrs L. Olson (USNM) for providing access to the Carriker collection, reading and commenting on this manuscript, and help in many other ways. Carmel M. Brown typed the manuscript.

TABLE 1

Collecting stations of M. A. Carriker Jr. for USNM

The figure in parenthesis is the page number in Paynter & Traylor (1981), *Ornithological Gazetteer of Colombia*. The coordinates are given in degrees and minutes and all latitudes are north of the equator.

1(1)	Acandí; Chocó	0832/7714
2(4)	Agüero, Páramo de; Boyacá	c.0559/7305
3(4)	Agustín Codazzi; Cesar	1002/7314
4(9)	Angostura; Santander	c.0723/7254
5(13)	Atanquez; Cesar	1042/7321
6(14)	Ayacucho; Cesar	0836/7335
7(20)	Belén; Huila	0215/7605
8(20)	Bellavista; Norte de Santander	0837/7304
9(26)	Botero; Antioquia	0632/7515
10(27)	Bucaramanga; Santander	0708/7309
11(28)	Buenos Aires; Norte de Santander	c.0801/7258
12(36)	Camp Perijá; Cesar	c.0949/7303
13(36)	Camperucho; Cesar	1006/7342
14(41)	Carraipía; La Guajira	1116/7222
15(41)	Cartagena; Bolivar	1025/7532
16(42)	Casacará; Cesar	0950/7316
17(47)	Chenducua; Cesar	1047/7325
18(49)	Chinchicuá; Cesar	c.1030/7335
19(55)	Cincinati; Magdalena	1106/7406
20(58)	Colosó; Sucre	0930/7521
21(59)	Conejo; La Guajira	1047/7248
22(60)	Convención; Norte de Santander	0828/7321
23(61)	Costarrica; Magdalena	0944/7425
24(61)	Coveñas; Sucre	0925/7542
25(69)	Distracción; La Guajira	1054/7253
26(76)	El Difícil; Magdalena	0951/7414
27(77)	El Hato; Norte de Santander	c.0750/7230
28(78)	El Mamón, Cerro; Cesar	1037/7333
29(80)	El Pescado; Antioquia	c.0720/7523
30(81)	El Real; Antioquia	0740/7446
31(89)	Frontino, Páramo; Antioquia	0628/7604
32(99)	Guamalito; Norte de Santander	0834/7329
33(101)	Guatapurí, Río; Cesar	1027/7312
34(106)	Hacienda Belén; Antioquia	c.0710/7443
35(107)	Hacienda La Capilla; Cauca	c.0235/7636
36(108)	Hacienda La Ilusión; Antioquia	c.0625/7605
37(108)	Hacienda Las Vegas; Santander	c.0704/7256
38(109)	Hacienda Potreros; Antioquia	c.0639/7609
39(109)	Hacienda Santana; Santander	c.0727/7308
40(110)	Hacienda Vista Nieve; Magdalena	1105/7405
41(110)	Hacienda Zulaiba; Antioquia	c.0650/7528
42(111)	Hiroca; Cesar	c.0942/7305
43(119)	Junco, Laguna de; La Guajira	c.1029/7255
44(120)	Jurubidá, Río; Chocó	0550/7717

45(122) La Africa; La Guajira c.1032/7256
46(123) La Bodega; Antioquia c.0542/7507
47(123) La Candela; Huila c.0150/7620
48(127) La Cueva; La Guajira c.1101/7256
49(128) La Esperanza; Cesar c.0957/7318
50(129) La Gloria; Cesar 0837/7348
51(136) La Plata; Huila 0223/7553
52(137) La Raya; Bolívar 0820/7434
53(140) La Sofía; Caldas 0538/7504
54(148) Los Gorros; La Guajira c.1103/7256
55(153) Mamatoco; Magdalena 1114/7410
56(163) Monte Elías; La Guajira c.1051/7243
57(165) Muchimbo, Punto; Valle del Cauca c.0408/7704
58(166) Munchique, Cerro; Cauca 0232/7657
59(170) Nazareth; La Guajira 1211/7117
60(171) Necoclí; Antioquia 0826/7648
61(174) Norosí; Bolívar 0832/7402
62(175) Nuquí; Chocó 0542/7717
63(175) Nuquí, Río; Chocó 0541/7716
64(176) Ocaña; Norte de Santander 0815/7320
65(183) Palo Gordo; Norte de Santander 0740/7231
66(184) Pamplona; Norte de Santander 0723/7239
67(190) Perijá, Serranía de; Cesar/La Guajira 1000/7300
68(191) Petrólea; Norte de Santander 0830/7235
69(192) Pintado, Cerro; La Guajira 1029/7255
70(199) Pueblo Nuevo; Córdoba 0830/7531
71(204) Puerto Sagoc; Cesar 0838/7349
72(205) Puracé; Cauca 0224/7627
73(206) Puracé, Páramo de; Cauca/Huila c.0224/7623
74(212) Regeneración; Bolívar 0806/7438
75(214) Río Viejo; Bolívar 0835/7351
76(220) Salvajín, Río; Córdoba 0745/7616
77(220) San Agustín; Huila 0153/7616
78(227) San José; Cesar 1045/7324
79(229) San Lorenzo, Cuchilla; Magdalena c.1110/7407
80(233) San Sebastián de Rábago; Cesar 1034/7336
81(237) Santa Rosa; Bolívar 0758/7403
82(244) Simití; Bolívar 0758/7357
83(246) Socorré; Córdoba 0751/7617
84(247) Sonsón, Páramo de 0543/7515
85(253) Tarazá; Antioquia 0735/7521
86(256) Tierralta; Córdoba 0811/7604
87(256) Tierra Nueva; La Guajira c.1035/7245
88(257) Tijeras; Huila 0222/7616
89(259) Toledo; Norte de Santander 0719/7228
90(266) Unguía; Chocó 0801/7704
91(267) Uribia; La Guajira 1143/7216
92(267) Urrao; Antioquia 0620/7611
93(269) Valdivia; Antioquia 0711/7527
94(271) Venecia; Caquetá 0134/7531
95(271) Ventanas; Antioquia c.0705/7527
96(272) Villa Arteaga; Antioquia 0720/7626
98(275) Virolín; Santander 0605/7312
99(275) Volador; Bolívar c.0758/7415
97(273) Villa Felisa; Norte de Santander c.0745/7233

SPECIES LIST

Numbers refer to the collecting stations in Table 1.

Compass points and 'Central' are given as capital letters, those without a fullstop (period) meaning 'northerly' or 'north' etc., those with a stop meaning Eastern, Central and Western (Andes).

English names and their spelling follow *The Species of Birds of So th America* by R. Meyer de Schauensee (1970).

Nothocercus bonapartei Highland Tinamou. 45, 87: first records in Snía. de Perijá.

Nothocercus julius Tawny-breasted Tinamou. 11: 100 km N extension in E. Andes.

Tigrisoma fasciatum Fasciated Tiger-Heron. 52, 61: "fill in" records between Santa Marta Mts. and N. Tolima.

Mycteria americana Wood Stork. 76, 90: 300 km SW extension to Gulf of Urabá.

Cathartes burrovianus Lesser Yellow-headed Vulture. 82: first record in middle Magdalena Valley.

Leptodon cayanensis Gray-headed Kite. 23, 30, 83: "fill in" records between Santa Marta Mts. and N end of W. and C. Andes.

Elanoides forficatus Swallow-tailed Kite. 1: 200 km W extension to Gulf of Urabá.

Elanus leucurus White-tailed Kite. 25: first record on NE base of Santa Marta Mts.

Accipiter striatus Sharp-shinned Hawk. 36: first record in N part of W. Andes.

Accipiter collaris Semicollared Hawk. 72: first record in C. Andes.

Accipiter bicolor Bicolored Hawk. 47: 300 km S extension in Magdalena Valley.

Harpyhaliaetus solitarius Solitary Eagle. 42: first record in Snía. de Perijá.

Buteo albonotatus Zone-tailed Hawk. 26: 200 km S extension from Santa Marta.

Morphnus guianensis Crested Eagle. 83: 100 km E extension to Sinú Valley.

Spizastur melanoleucus Black-and-white Hawk-Eagle. 16: 450 km N extension in Magdalena Valley; 56: first record in Snía. de Perijá.

Oroaetus isidori Black-and-chestnut Eagle. 87: first record in Snía. de Perijá.

Daptrius ater Black Caracara. 68: 400 km N extension E of Andes to Norte de Santander.

Micrastur ruficollis Barred Forest-Falcon. 11: first record in E. Andes; 42: first record in Snía. de Perijá (identified as *M. r. zonothorax*).

Falco deiroleucus Orange-breasted Falcon. 49: 600 km N extension to W base of Snía. de Perijá.

Aburria aburri Wattled Guan. 8, 65: 350 km N extension in E. Andes; 42, 87: first records in Snía. de Perijá; 54: first record at NE base of Santa Marta Mts.

Odontophorus erythrops Rufous-fronted Wood-Quail. 53, 99: first records in Magdalena Valley.

Odontophorus atrifrons Black-fronted Wood-Quail. 42: first record in Snía. de Perijá.

Laterallus exilis Gray-breasted Crake. 62: first record on Pacific coast.

Gallinago nobilis Noble Snipe. 31, 92: 450 km N extension in W. Andes.

Sterna superciliaris Yellow-billed Tern. 52, 82: first records W of E. Andes.

Columba subvinacea (*zuliae*) Ruddy Pigeon. 14, 42: first records in Snía. de Perijá.

Columba plumbea Plumbeous Pigeon. 8: first record in Norte de Santander, E of Andes.

Leptotila rufaxilla Gray-fronted Dove. 8, 68: 300 km N extension to E Norte de Santander.

Geotrygon montana Ruddy Quail-Dove. 22: first record in Norte de Santander, E of Andes; 14, 42: first records in Snía. de Perijá.

Geotrygon violacea Violaceous Quail-Dove. 34, 99: first records in C. Andes; 42: first record in Snía. de Perijá.

Geotrygon linearis Lined Quail-Dove. 56, 87: first records in Snía. de Perijá; 53: first record on E slope of C. Andes.

Forpus conspicillatus Spectacled Parrotlet. 52, 61, 76, 83: 300 km W extension N of Andes to Río Sinú Valley.

Coccyzus pumilus Dwarf Cuckoo. 14, 71: 250 km extension from middle Magdalena Valley to N tip of Snía. de Perijá.

Coccyzus lansbergi Gray-capped Cuckoo. 82: 300 km S extension in Magdelena Valley; 96: first record E of Andes.

Dromococcyx phasianellus Pheasant Cuckoo. 87: first record in Snía. de Perijá; 61, 81: first records W of E. Andes.

Glaucidium jardinii Andean Pygmy-Owl. 43: first record in Snía. de Perijá.

Speotyto cunicularia Burrowing Owl. 16: first record in Cesar Valley.

Ciccaba nigrolineata Black-and-white Owl. 48: first record in Santa Marta Mts.; 42: first record in Snía. de Perijá.

Ciccaba virgata Mottled Owl. 14, 87: first records in Snía. de Perijá.

Rhinoptynx clamator Striped Owl. 68: first record in Norte de Santander.

Nyctibius grandis Great Potoo. 49: first record in Cesar Valley.

Lurocalis semitorquatus Short-tailed Nighthawk. 42: first record in Snía. de Perijá.

Caprimulgus longirostris Band-winged Nightjar. 38: 400 km N extension in W. Andes.

Chaetura cinereiventris Gray-rumped Swift. 85: first record N of C. Andes.

Phaethornis superciliosus Long-tailed Hermit. 14, 42: first records in Snía. de Perijá.

Eutoxeres aquila White-tipped Sicklebill. 76: first record N of W. Andes; 53: first record on W slope middle Magdalena Valley.

Campylopterus falcatus Lazuline Sabrewing. 12, 45: first records in Snía. de Perijá.

Colibri delphinae Brown Violetear. 65: 350 km N extnesion in E. Andes.

Chrysuronia oenone Golden-tailed Sapphire. 22: 300 km N extension at E base of E. Andes.

Leucippus fallax Buffy Hummingbird. 5: first record in Santa Marta Mts. Recorded at 1000 m, the highest and southernmost record.

Amazilia cyanifrons Indigo-capped Hummingbird. 35: first record in Cauca Valley.

Amazilia castaneiventris Chestnut-bellied Hummingbird. 61: the only other record of this endemic is at Soatá (2045 m), Boyacá.

Chalybura buffonii White-vented Plumeleteer. 14, 42, 56: first records in Snía. de Perijá.

Adelomyia melanogenys Speckled Hummingbird. 14, 56: first records in Snía. de Perijá.

Heliodoxa rubinoides Fawn-breasted Brilliant. 38: 300 km N extension in W. Andes.

Heliodoxa jacula Green-crowned Brilliant. 53: first record on E slope of C. Andes.

Lafresnaya lafresnayi Mountain Velvetbreast. 36: 400 N extension in W. Andes.

Coeligena torquata (*torquata*) Collared Inca. 31: 300 km N extension in W. Andes.

Coeligena helianthea Blue-throated Starfrontlet. 12: first record in Snía. de Perijá.

Boissonneaua flavescens Buff-tailed Coronet. 36, 38: 200 km N extension in W. Andes.

Heliangelus exortis Tourmaline Sunangel. 36: 200 km N extension in W. Andes.

Eriocnemis vestitus Glowing Puffleg. 46: 400 km N extension in C. Andes.

Haplophaedia aureliae Greenish Puffleg. 98: 150 km N extension in E. Andes.

Ocreatus underwoodii Booted Racket-tail. 38, 92: 300 km N extension in W. Andes.

Metallura tyrianthina Tyrian Metaltail. 31: 450 km N extension in W. Andes.

Aglaiocercus kingi Long-tailed Sylph. 38: 300 km N extension in W. Andes.

Schistes geoffroyi Wedge-billed Hummingbird. 93: 200 km N extension in C. Andes.

Heliothryx barroti Purple-crowned Fairy. 53: 150 km S extension in Magdalena Valley.

Heliomaster longirostris Long-billed Starthroat. 76: first record in Sinú Valley; 61: 150 km N extension in Magdalena Valley.

Pharomachrus antisianus Crested Quetzal. 12, 42: first records in Snía. de Perijá.

Pharomachrus auriceps Golden-headed Quetzal. 43, 45: first records in Snía. de Perijá.

Trogon collaris Collared Trogon. 42, 56, 87: first records in Snía. de Perijá.

Malacoptila mystacalis Moustached Puffbird. 42, 56, 87: first records in Snía. de Perijá.

Veniliornis fumigatus Smoky-brown Woodpecker. 22, 65: 150 km N extension in E. Andes; 38: 200 km N extension in W. Andes.

Veniliornis dignus Yellow-vented Woodpecker. 38: 300 km N extension in W. Andes.

Xiphorhynchus guttatus Buff-throated Woodcreeper. 12: first record in Snía. de Perijá.

Xiphorhynchus erythropygius Spotted Woodcreeper. 53: first record in Magdalena Valley.

Xiphorhynchus triangularis Olive-backed Woodcreeper. 38: 150 km N extension in W. Andes.

Campylorhamphus pusillus Brown-billed Scythebill. 38: 200 km N extension in W. Andes. Also recorded at 11, 47, 93.

Synallaxis elegantior Elegant Spinetail. 36, 38: 150 km N extension in W. Andes. Also recorded at 11.

Synallaxis unirufa Rufous Spinetail. 41, 84: 250 km N extension in C. Andes.

Cranioleuca erythrops Red-faced Spinetail. 93: 250 km N extension in C. Andes; 98: first record in E. Andes.

Schizoeaca perijana Perija Thistletail. 69: the first record for Colombia, the specimens being collected in July 1942 in Snía. de Perijá, though the species was only first described from specimens taken in July 1974 in Venezuela (Phelps (1977) *Bol. Soc. Venez. Cienc. Nat.* 33: 43-53).

Asthenes wyatti Streak-backed Canastero. 69: first record in Snía. de Perijá.

Margarornis squamiger Pearled Treerunner. 31, 38: 450 km N extension in W. Andes; 56, 87: first records in Snía. de Perijá.

Margarornis stellatus Fulvous-dotted Treerunner. 93: first record in C. Andes.

Premnornis guttuligera Rusty-winged Barbtail. 38: 350 km N extension in W. Andes; 11: 300 km N extension in E. Andes.

Premnoplex brunnescens Spotted Barbtail. 37: 200 km N extension in E. Andes; 87: first record in Snía. de Perijá.

Pseudocolaptes boissonneautii Streaked Tuftedcheek. 43: first record in Snía. de Perijá.

Syndactyla subalaris Lineated Foliage-gleaner. 38: 200 km N extension in W. Andes.

Anabacerthia striaticollis Montane Foliage-gleaner. 38, 92: 200 km N extension in W. Andes; 45: first record in Snía. de Perijá. Also recorded at 98.

Philydor fuscipennis (includes *P. erythronotus* and sometimes merged with *P. erythrocercus*) Slaty-winged Foliage-gleaner. 9, 30, 39, 74, 81, 99: new records N of C. Andes E to N Santander; 53: 150 km S extension in Magdalena Valley.

Philydor rufus Buff-fronted Foliage-gleaner. 53, 93: first records in C. Andes; 98: 200 km N extension in E. Andes.

Automolus rubiginosus (*saturatus*) Ruddy Foliage-gleaner. 34: first record at N end of C. Andes.

Thripadectes virgaticeps Streak-capped Treehunter. 46: 400 km N extension in C. Andes.

Sclerurus mexicana Tawny-throated Leaftosser. 39, 81: 700 km N extension in Magdalena Valley.

Cymbilaimus lineatus Fasciated Antshrike. 53: 150 km S extension in Magdalena Valley.

Thamnophilus unicolor Uniform Antshrike. 38: 300 km N extension in W. Andes.

Clytoctantes alixi Recurve-billed Bushbird. 34, 53, 76, 81: extends range W to upper Río Sinú and S in Magdalena Valley to N boundary of Caldas.

Dysithamnus mentalis Plain Antvireo. 12, 42: first records in Snía. de Perijá.

Myrmotherula brachyura Pygmy Antwren. 34, 83: first records N of W. and C. Andes.

Herpsilochmus rufimarginatus Rufous-winged Antwren. 81: first record in Magdalena Valley.

Microrhopias quixensis Dot-winged Antwren. 94: 200 km N extension to Caquetá and second record E of Andes in Colombia.

Formicivora grisea White-fringed Antwren. 60, 83: 125 km W extension to Río Sinú and Gulf of Urabá; 51: 100 km S extension in Magdalena Valley.

Drymophila caudata Long-tailed Antbird. 38: 300 km N extension in W. Andes; 42, 43: first records in Snía. de Perijá; 98: 200 km S extension in E. Andes.

Myrmeciza immaculata Immaculate Antbird. 39: 200 km N extension in Magdalena Valley.

Grallaria squamigera Undulated Antpitta. 31: 350 km N extension in W. Andes.

Grallaria guatimalensis Scaled Antpitta. 12, 42: first records in Snía. de Perijá.

Grallaria ruficapilla Chestnut-crowned Antpitta. 12: first record in Snía. de Perijá; 38: 300 km N extension in W. Andes.

Grallaria hypoleuca Bay-backed Antpitta. 98: 200 km N extension in E. Andes.

Grallaria quitensis Tawny Antpitta. 4: 125 km N extension in E. Andes.

Scytalopus unicolor Unicolored Tapaculo. 38: 400 km N extension in W. Andes. Also recorded at 11.

Pipra pipra (*unica*) White-crowned Manakin. 53: 400 km N extension in Magdalena Valley.

Chiroxiphia lanceolata Lance-tailed Manakin. 59: 150 km extension to E tip of Guajira Peninsula.

Corapipo leucorrhoa White-ruffed Manakin. 14: 300 km NE extension to N tip of Snía. de Perijá.

Manacus manacus White-bearded Manakin. 51: 200 km S extension to head of Magdalena Valley.

Machaeropterus regulus Striped Manakin. 22: 200 km N extension in E. Andes.

Piprites chloris Wing-barred Manakin. 53: 200 km S extension in Magdalena Valley.

Pipreola aureopectus Golden-breasted Fruiteater. 93: first record in C. Andes; 12, 42, 45: first records in Snía. de Perijá.

Pachyramphus rufus Cinereous Becard. 82, 83: 250 km W extension from Río Magdalena to upper Río Sinú.

Pachyramphus albogriseus Black-and-white Becard. 8: 200 km N extension in E. Andes.

Cotinga nattererii Blue Cotinga. 30, 34, 39 ,81: 250 km extension E from Río Cauca to Bucaramanga.

Querula purpurata Purple-throated Fruitcrow. 53: 150 km S extension in Magdalena Valley.

Phyllomyias griseiceps (*cristatus*) Sooty-headed Tyrannulet. 39, 99: 300 km N extension in Magdalena Valley.

Phyllomyias nigrocapillus Black-capped Tyrannulet. 36: 450 km N extension in W. Andes.

Phyllomyias uropygialis Tawny-rumped Tyrannulet. 4: 350 km N extension in E. Andes.

Phyllomyias cinereiceps Ashy-headed Tyrannulet. 39: 300 km N extension in W. Andes.

Zimmerius vilissimus (*tamae*) Paltry Tyrannulet. 45, 56: first records in Snía. de Perijá.

Ornithion brunneicapillum Brown-capped Tyrannulet. 32: 200 km N extension in Magdalena Valley.

Sublegatus modestus (*atrirostris*) Short-billed Flycatcher. 82: southernmost record in Magdalena Valley.

Myiopagis gaimardii Forest Elaenia. 39: southernmost record in Magdalena Valley.

Elaenia chiriquensis Lesser Elaenia. 9: 400 km N extension in C. Andes; 45, 56: first records in Snía. de Perijá.

Elaenia frantzii (*pudica*) Mountain Elaenia. 38, 92: 300 km N extension in W. Andes; 43: first record in Snía. de Perijá.

Mecocerculus leucophrys White-throated Tyrannulet. 41, 84: 200 km N extension in C. Andes.

Mecocerculus stictopterus White-banded Tyrannulet. 37: 250 km N extension in E. Andes.

Inezia subflava Pale-tipped Tyrannulet. 82: southernmost record in Magdalena Valley.

Mionectes olivaceus Olive-striped Flycatcher. 12, 45: first records in Snía. de Perijá.

Leptopogon rufipectus Rufous-breasted Flycatcher. 11, 65: 300 km N extension in E. Andes.

Phylloscartes supercilliaris Rufous-browed Tyrannulet. 98: only definite record in Colombia (5 specimens). Formerly known only from "Bogotá trade skins".

Pogonotriccus poecilotis Variegated Bristle-Tyrant. 11, 98: 400 km N extension in E. Andes; 43: first record in Snía. de Perijá; 93: 100 km N extension in C. Andes.

Pseudotriccus pelzelni Bronze-olive Pygmy-Tyrant. 47, 95: the only records in C. Andes.

Pseudotriccus ruficeps Rufous-headed Pygmy-Tyrant. 84: 100 km N extension in C. Andes.

Lophotriccus pileatus Scale-crested Pygmy-Tyrant. 22: 400 km N extension in E. Andes; 38: 150 km N extension in W. Andes.

Atalotriccus pilaris Pale-eyed Pygmy-Tyrant. 59: 200 km extension to E tip of Guajira; 51: 130 km S extension in Magdalena Valley. Also recorded at 23, 26, 82.

Hemitriccus granadensis Black-throated Tody-Tyrant. 36: 200 km N extension in W. Andes.

Platyrinchus mystaceus White-throated Spadebill. 12, 45: first records in Snía. de Perijá; 53, 93, 99: 350 km extension to N end of C. Andes and Snía. San Lucas.

Onychorhynchus coronatus Royal Flycatcher. 68: first record in Norte de Santander.

Myiotriccus ornatus Ornate Flycatcher. 98: 150 km N extension in E. Andes.

Terenotriccus erythrurus Ruddy-tailed Flycatcher. 20, 26, 48, 60, 61: "fill in" records from Santa Marta to N end of W. and C. Andes.

Myiobius villosus (*schaeferi*) Tawny-breasted Flycatcher. 87: first record in Snía. de Perijá.

Myiobius atricauda Black-tailed Flycatcher. 1, 6, 13, 20, 23, 49, 60, 61, 70, 82: "fill in" records from Santa Marta Mts. to N end of W. and C. Andes.

Myiobius barbatus Sulphur-rumped Flycatcher. 29, 30, 34, 74, 76, 81, 83, 85, 99: first records in area N of W. and C. Andes.

Contopus fumigatus (*ardosiacus*) Greater Pewee. 43, 45: first records in Snía. de Perijá.

Ochthoeca rufipectoralis Rufous-breasted Chat-Tyrant. 12: first record in Snía. de Perijá.

Ochthoeca cinnamomeiventris Slaty-backed Chat-Tyrant. 36, 38: 150 km N extension in W. Andes.

Ochthoeca frontalis Crowned Chat-Tyrant. 31: first record in W. Andes.

Myiotheretes striaticollis Streak-throated Bush-Tyrant. 12: first record in Snía. de Perijá.

Myiotheretes fumigatus Smoky Bush-Tyrant. 43: first record in Snía. de Perijá.

Knipolegus poecilurus Rufous-tailed Tyrant. 11, 98: 400 km N extension in E. Andes from Bogotá to S Santander and central Norte de Santander; 12, 43, 45: first records in Snía. de Perijá.

Hirundinea ferruginea Cliff Flycatcher. 87: first record in Snía. de Perijá.

Rhytipterna holerythra Rufous Mourner. 53: 150 km S extension in Magdalena Valley.

Sirystes sibilator Sirystes. 62: 150 km S extension on Pacific coast; 59: 200 km E extension from Pacific coast to Río Sinú.

Myiarchus cephalotes Pale-edged Flycatcher. 38: 400 km N extension in W. Andes.

Myiodynastes chrysocephalus Golden-crowned Flycatcher. 11, 65: 400 km N extension in E. Andes; 38: 200 km N extension in W. Andes.

Cyanolyca viridicyana (*quindiuna*) Collared Jay. 36, 38: first records in W. Andes; 11: 100 km N extension in E. Andes.

Cinnycerthia unirufa Rufous Wren. 41, 84: 250 km N extension in C. Andes; 31, 36: first records in W. Andes.

Cinnycerthia peruana Sepia-brown Wren. 36, 38: 400 km N extension in W. Andes.

Thryothorus spadix Sooty-headed Wren. 9, 39, 53, 99: first records on both slopes above middle Magdalena Valley; 93: first record at N end of C. Andes above Cauca Valley.

Thryothorus genibarbis (*saltuensis*) Moustached Wren. 42: first record in Snía. de Perijá; 38, 92: 300 km N extension in W. Andes.

Thryothorus rufalbus Rufous-and-white Wren. 39, 81: southernmost records in Magdalena Valley.

Troglodytes solstitialis (*solitarius*) Mountain Wren. 11, 37: 400 km N extension in E. Andes; 43: first record in Snía. de Perijá; 36: 400 km N extension in W. Andes.

Catharus aurantiirostris Orange-billed Nightingale-Thrush. 45, 87: first records in Snía. de Perijá.

Catharus fuscater Slaty-backed Nightingale-Thrush. 12, 43: first records in Snía. de Perijá.

Platycichla flavipes Yellow-legged Thrush. 22: 150 km N extension in E. Andes.

Turdus serranus Glossy-black Thrush. 43: first record in Snía. de Perijá.

Turdus olivater Black-hooded Thrush. 45, 56: first records in Snía. de Perijá.

Turdus fulviventris Chestnut-bellied Thrush. 42: first record in Snía. de Perijá.

Turdus grayi Clay-colored Thrush. 61, 81, 82: southernmost records in Magdalena Valley. Also recorded at 86.

Turdus albicollis White-necked Thrush. 32: first record in Magdalena Valley.

Cyclarhis nigrirostris Black-billed Peppershrike. 2, 11, 37: 400 km N extension in E. Andes; 36, 38: 200 km N extension in W. Andes.

Vireolanius eximius Yellow-browed Shrike-Vireo. 42: first record in Snía. de Perijá; 8: first record in Norte de Santander; 53: 150 km S extension in Magdalena Valley.

Vireo leucophrys (*dissors*) Brown-capped Vireo. 38, 92: 300 km N extension in W. Andes (see Olson (1981) *Proc. Biol. Soc. Wash.* 94: 363-373).

Hylophilus semibrunneus Rufous-naped Greenlet. 8: 200 km N extension in E. Andes; 42: first record in Snía. de Perijá; 53: 300 km N extension in C. Andes.

Hylophilus aurantiifrons Golden-fronted Greenlet. 16, 20, 23, 34: "fill in" records from Santa Marta Mts. S to upper Río Nechí.

Hylophilus flavipes Scrub Greenlet. 51: 100 km S extension in Magdalena Valley.

Cacicus leucoramphus Mountain Cacique. 36: 300 km N extension in W. Andes; 11: 100 km N extension in E. Andes.

Amblycercus holosericeus (*australis*) Yellow-billed Cacique. 43: first record in Snía. de Perijá.

Parula pitiayumi Tropical Parula. 22, 32, 64: 150 km N extension in E. Andes; 14, 42: first records in Snía. Perijá.

Geothlypis aequinoctialis Masked Yellowthroat. 52, 71, 86: 300 km W extension to Río Sinú.

Basileuterus culicivorus (*indignus*) Golden-crowned Warbler. 42, 56: first records in Snía. de Perijá.

Basileuterus luteoviridis (*richardsoni*) Citrine Warbler. 36: 450 km N extension in W. Andes.

Basileuterus nigrocristatus Black-crested Warbler. 36: first record in W. Andes; 12, 43: first records in Snía. de Perijá.

Basileuterus coronatus Russet-crowned Warbler. 36, 38: 150 km N extension in W. Andes.

Basileuterus delattrii Chestnut-capped Warbler. 87: first record in Snía. de Perijá.

Basileuterus fulvicauda (*motacilla*) Buff-rumped Warbler. 51: 200 km S extension in Magdalena Valley.

Conirostrum bicolor Bicolored Conebill. 15: 100 km W extension to Cartagena.

Conirostrum sitticolor Blue-backed Conebill. 31: 400 km N extension in W. Andes.

Conirostrum albifrons Capped Conebill. 36: 300 km N extension in W. Andes.

Diglossa caerulescens Bluish Flower-piercer. 12: first record in Snía. de Perijá; 38: 150 km N extension in W. Andes.

Diglossa cyanea Masked Flower-piercer. 31, 38: 150 km N extension in W. Andes.

Diglossa sittoides (*dorbignyi*) Rusty Flower-piercer. 11: 300 km N extension in E. Andes.

Chlorophanes spiza Green Honeycreeper. 68: first record in Norte de Santander E of Andes.

Tersina viridis Swallow-Tanager. 22: first record in Norte de Santander E of Andes.

Chlorophonia cyanea Blue-naped Chlorophonia. 38: 200 km N extension in W. Andes.

Chlorophonia pyrrhophrys Chestnut-breasted Chlorophonia. 12: first record in Snia. de Perijá; 38: 300 km N extension in W. Andes.

Euphonia concinna Velvet-fronted Euphonia. 51: 100 km S extension in Magdalena Valley.

Euphonia laniirostris Thick-billed Euphonia. 51: 250 km S extension in Magdalena Valley.

Euphonia fulvicrissa Fulvous-vented Euphonia. 8: first record on E slope of E. Andes (near low pass).

Chlorochrysa phoenicotis Glistening-green Tanager. 93: first record in C. Andes.

Chlorochrysa nitidissima Multicolored Tanager. 53: 150 km N extension in C. Andes.

Tangara arthus Golden Tanager. 87: first record in Snía. de Perijá.

Tangara icterocephala Silver-throated Tanager. 93: first record in C. Andes.

Tangara cyanicollis Blue-necked Tanager. 99: 150 km N extension in C. Andes to Snía. de San Lucas.

Tangara gyrola Bay-headed Tanager. 56: first record in Snía. de Perijá.

Tangara nigroviridis Beryl-spangled Tanager. 45: first record in Snía. de Perijá.

Tangara heinei Black-capped Tanager. 56, 87: first records in Snía. de Perijá

Tangara cyanoptera Black-headed Tanager. 42, 45: first records in Snía. de Perijá.

Iridosornis porphyrocephala Purplish-mantled Tanager. 38: 200 km N extension in W. Andes.

Iridosornis rufivertex Golden-crowned Tanager. 37, 66: 350 km N extension in E. Andes.

Buthraupis montana Hooded Mountain-Tanager. 12: first record in Snía. de Perijá; 31: 300 km N extension in W. Andes.

Piranga flava Hepatic Tanager. 32: first record in E. Andes.

Piranga leucoptera White-winged Tanager. 12: first record in Snía. de Perijá; 53: 150 km N extension in C. Andes.

Piranga rubriceps Red-hooded Tanager. 36: 300 km N extension in W. Andes.

Habia rubica Red-crowned Ant-Tanager, 32: first record on W side of E. Andes.

Creurgops verticalis Rufous-crested Tanager. 38: 300 km N extension in W. Andes.

Eucometis penicillata Gray-headed Tanager. 68: 200 km N extension E of Andes; 51: 250 km S extension in Magdalena Valley.

Rhodinocichla rosea (*harterti*) Rosy Thrush-Tanager. 32: 400 km N extension in E. Andes.

Hemithraupis guira Guira Tanager. 22: 250 km N extension on E slope of E. Andes.

Thlypopsis fulviceps Fulvous-headed Tanager. 12: first record in Snía. de Perijá.

Chlorospingus flavigularis Yellow-throated Bush-Tanager. 53: first record on E slope of C. Andes.

Chlorospingus canigularis Ash-throated Bush-Tanager. 65: 125 km N extension in E. Andes; 38: 150 km N extension in W. Andes.

Hemispingus atropileus Black-capped Hemispingus. 31: 450 km N extension in W. Andes.

Hemispingus superciliaris (*nigrifrons*) Superciliated Hemispingus. 41: 200 km N extension in C. Andes.

Hemispingus frontalis Oleaginous Hemispingus. 11, 37, 65: 300 km N extension in E. Andes; 43, 45: first records in Snía. de Perijá; 38: 400 km N extension in W. Andes.

Hemispingus melanotis Black-eared Hemispingus. 37: 300 km N extension in E. Andes.

Hemispingus verticalis Black-headed Hemispingus. 36: first record in W. Andes; 41: 100 km N extension in C. Andes.

Schistochlamys melanopis Black-faced Tanager. 42: first record in Snía. de Perijá.

Catamblyrhynchus diadema Plush-capped Finch. 43: first record in Snía. de Perijá; 79: first record in Santa Marta Mts. (collected 18 Sep 1945).

Cyanocompsa cyanoides Blue-black Grosbeak. 68: 450 km N extension E of Andes.

Guiraca caerulea Blue Grosbeak. 42: first record for Colombia, collected 4 Apr 1942 in Snía. de Perijá.

Pheucticus chrysopeplus Yellow Grosbeak. 42, 43, 45: first records in Snía. de Perijá.

Atlapetes rufinucha Rufous-naped Brush-Finch. 42, 56: first records in Snía. de Perijá.

Atlapetes torquatus (*assimilis*) Stripe-headed Brush-Finch. 31: 450 km N extension and first on Pacific slope of W. Andes; 22: 150 km N extension in E. Andes.

Arremon schlegeli Golden-winged Sparrow. 87: first record in Snía. de Perijá; 64: 200 km N extension and first record on E slope of E. Andes.

Tiaris bicolor Black-faced Grassquit. 13: first record in Santa Marta Mts. (Southern base).

Tiaris olivacea Yellow-faced Grassquit. 22: 150 km N extension in E. Andes; 94: first record E of Andes in Caquetá.

Tiaris obscura Dull-colored Grassquit. 56: first record in Snía. de Perijá; 53: first record on E slope of C. Andes; 39: 100 km N extension in E. Andes.

Catamenia homochroa Paramo Seedeater. 69: first record in Snía. de Perijá; 84: 150 km N extension in C. Andes.

Sporophila luctuosa Black-and-white Seedeater. 38, 58, 96: first records in W. Andes; 34, 85: first records N of C. Andes; 2, 37: 250 km N extension in E. Andes.

Sicalis citrina Stripe-tailed Yellow-Finch. 7: 450 km S extension in C. Andes; 32: 500 km N extension in E. Andes.

Haplospiza rustica Slaty Finch. 87: first record in Snía. de Perijá.

Emberizoides herbicola Wedge-tailed Grass-Finch. 42, 56, 87: first records in Snía. de Perijá.

Ammodramus humeralis Grassland Sparrow. 56, 87: first records in Snía. de Perijá; 51: 125 km S extension in Magdalena Valley.

Spinus spinescens Andean Siskin. 69: first record in Snía. de Perijá.

Spinus xanthogaster Yellow-bellied Siskin. 36, 92: 150 km N extension in W. Andes.

Spinus psaltria Lesser Goldfinch. 38: 350 km N extension in W. Andes.

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Geographic variation in the Andean Coot *Fulica ardesiaca*

by Jon Fjeldsa

Received 2 July 1982

Fjeldså (1982) stated that the Neotropical Chestnut-fronted and White-fronted Coots previously known as *Fulica americana peruviana* and *Fulica ardesiaca* differ from one another in food and habitat preference, but nevertheless interbreed so often that it appears reasonable to treat them as one taxon 4 (Gill 196~~2~~). These coots in some respects resemble another Neotropical species, the Red-gartered Coot *F. armillata* rather than the Nearctic *F.a. americana*. The gap which separates them from Nearctic coots appears to be larger than that between the Nearctic and Old World's coots, which are currently recognized as separate species. A species status, *Fulica ardesiaca,* was therefore proposed for the Andean Coot and *F. americana peruviana* is synonymized. The Colombian Coot *F. americana columbiana,* on the other hand, has been regarded as intermediate between a typical *F. a. americana* and a chestnut-fronted *ardesiaca*. However, the appearance of downy young, voice and ethology places the Colombian Coot together with Nearctic and White-winged Coot *F. leucoptera,* and separates it from the Andean Coot (Fjeldså 1983).

The final proof of a species status for the Andean Coot would be to document sympatry with the Colombian Coot. The most southern record of a typical Colombian Coot (*Am.Mus.Nat.Hist.* 254930, ad. ♂, 12 March 1925) is from a breeding site for Andean Coots, Lake Yaguarcocha near Ibarra (0°20′N, 78°W) in northern Ecuador. However, the population of the Colombian Coot since then has declined, due to hunting and habitat destruction, and may today count at most 2000 birds in the Colombian departments Cundinamarca and Boyaca. This is well outside the northernmost breeding sites of Andean Coots in the department Nariño (2°N, 77–78°W).

The present study was made in order to see whether the morphological variation among Andean Coots could give any indication of past geneflow between the pertinent taxa.

Materials

I examined all specimens of the involved taxa in the zoological museums of the main universities in Bogotá, Buenos Aires, Copenhagen, Lima and Santiago de Chile and in the American Museum of Natural History (77 ad. Andean and 19 ad. Colombian Coots, mostly specimens collected when the Colombian Coot was possibly still numerous). The study was supplemented by field notes, mainly on colours of soft parts, in Peru (September 1977 to January 1978 and October 1981) and Colombia (September-October 1981), and information from field studies by Ole Byskov (Ecuador, Peru), Niels Krabbe (Peru, Bolivia), Karsten Thomsen (Ecuador) and Pierre de Villers (Peru), to whom I am grateful for their data.

Results

Colours of soft parts have been described by, for example, Gill (1962), Ripley (1977) and Fjeldså (1982, 1983). Colombian Coots differ from chestnut-fronted Andean Coots by having a smaller frontal shield (length 11.9–17.4 mm, against 18.5–27 mm) with a pointed posterior outline, chestnut-red

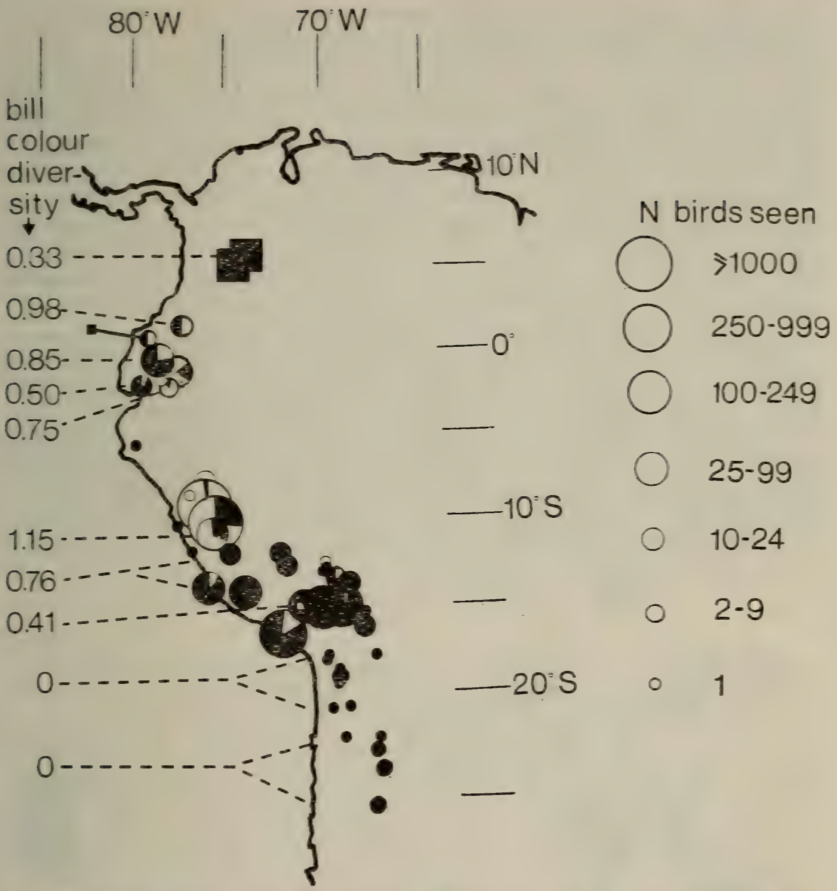

Fig. 1. Variation in the fractions of dark-fronted (black) and pale-fronted (white) individuals in coot *Fulica* populations in different parts of Colombia, Ecuador, Peru and northern Chile and Argentina. Squares show *F. americana columbiana*, circles *F. ardesiaca*. The size of the symbols indicates sample size. The diversity indices (see Hurtubia 1973) for the colour of bill with frontal shield is based on recognition of 10 colour categories.

subterminal spots on both mandibles (characters closely matched by Nearctic Coots), and yellow colouring only at the base of the upper mandible. The feet are olive green with more or less extensive yellow and orange areas, as in Nearctic Coots (Crawford 1978). Andean Coots have 2 main morphs – frontal shield chestnut/bill yellow/legs and feet green, *or* shield white/bill white/legs and feet grey, and some 'subtypes'. Fig. 1 is based on classification into these 2 main types, but the diversity indices (see Hurtubia 1973) to the left of the map are based on a classification into 10 colour subtypes.

Fig. 1 shows considerable local variation within the range of the Andean Coot, with stable conditions only in the furthest south. The northernmost populations show no general convergence towards the colours typical of the

Colombian Coot and no particular increase in diversity; but a high diversity is found wherever both main morphs are well established.

A bird from Lake Cocha in Nariño had a red zone from the frontal shield down the tomium, a detail typical of Red-gartered Coots. One bird from Cumbal in Nariño had a chestnut subterminal spot on the upper mandible. Similar spots have been found, though, as rare anomalies, as far south as in Lake Titicaca (16°S, 69°W) and I have seen it also in a White-winged Coot from Argentina. According to my field experience, the latter species may show a dimorphic shield colour (orange-scarlet or yellow). A disposition for polymorphic variation and for occurrence of bill-spots may thus be evolutionarily older than the speciation in the *Fulica americana/alai/ardesiaca/atra/caribea/cristata/leucoptera* complex, and the various characters may consequently have only slight genealogical information value.

There is no geographical trend in measurement within the range of the Andean Coot. The only particularly small (*columbiana*-sized) individual I found was from Peru, far away from any possible hybridization zone.

The general colour tone is almost identical in Colombian and Andean Coots. Extensive white apical markings on the inner secondaries are most typical of Nearctic, White-winged and Old World Coots. The extent of such markings was quantified according to a 12-point scale, zero meaning no white, 12 the state typical of a Nearctic Coot. Colombian Coots gave a mean

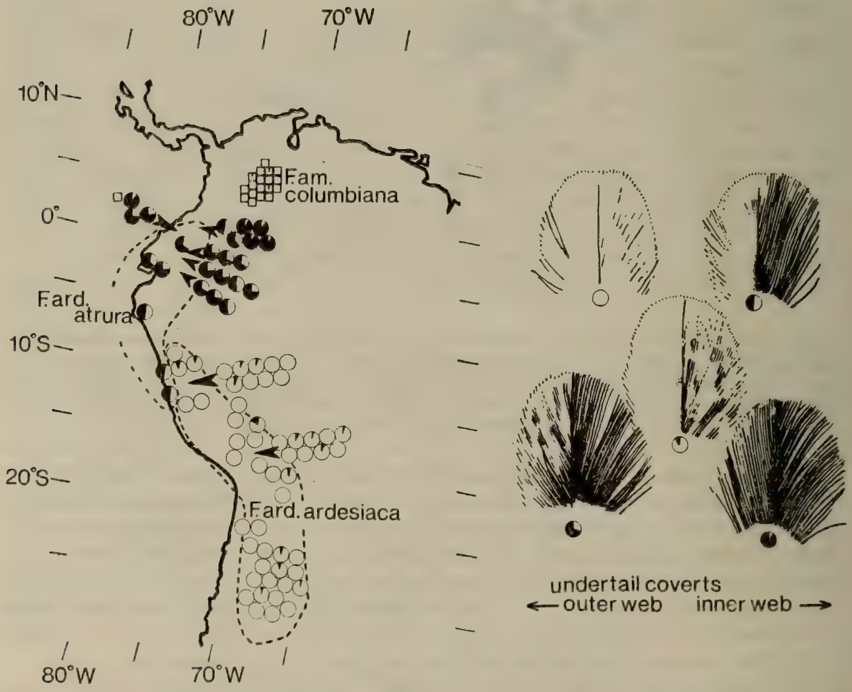

Fig. 2. Variation in amount of white colour on the undertail coverts of Andean Coots (circles) and Colombian Coots (squares). Five feathers with corresponding symbols are depicted, and geographic range of recognized taxa indicated.

value 9.42, 3 individuals having white only distally on some inner webs. Andean Coots usually have small white spots, but there is considerable individual variation all the way from Nariño to the Titicaca area, while white spots are almost absent further south. The average score for Andean Coots was 2.33 in Nariño, 2.37 in Ecuador, 2.93 in Central Peru, 1.80 in the Peruvian/Bolivian altiplano and 0.35 in northern Chile and Argentina. Six birds which overlapped with the range of variation among Colombian Coots were from Nariño (1), central Ecuador (1), central Peru (3) and Titicaca (1). The variability may thus occur throughout the zone with polymorphic variation in soft part colours, although the amount of white colour on the secondaries was not associated with any particular soft part colour.

Fig. 2 shows the variation in amount of white colour on the undertail coverts. These are completely white and form 2 broad white bands under the tail in most coots and gallinules, including Nearctic and Colombian Coots. This possibly primitive character is found in juvenile Andean Coots and in adults from the southern parts of the range. However, adult Andean Coots from coastal Peru northwards from Lima and from the paramos of Ecuador, and especially Nariño, have black inner webs on the undertail coverts and the outer webs more or less streaked or freckled black, in a few individuals virtually lacking any white colour. As seen from Fig. 2, very few birds from the highlands of central Peru and further south have dusky freckles on the undertail coverts, and no bird even approached the condition seen in the north of the range.

Conclusion

The variation in colours of bill and frontal shield and in wing-pattern give no basis for taxonomic subdivision, but suggest a genetic instability throughout much of the range of the Andean Coot. This could be a result of hybridization of 2 main morph types of Andean Coots (previously known as *Fulica ardesiaca* and *F. americana peruviana*), which possibly once were allopatric (Fjeldså 1982). Although a considerable variability is found in the north of the range, no specimens appeared to be hybrids between any of these and Colombian Coots, and there was no clinal change towards the Colombian Coot. On the contrary, the northernmost Andean Coots decidedly diverged from Colombian Coots in one character, the pattern of the undertail coverts. As this pattern is exposed in certain displays (Fjeldså 1983), one could suspect that the geographic trend was due to selection against hybridization in a period of sympatry.

Although direct evidence as to how Colombian and Andean Coots would interact in sympatry is lacking, one can conclude that the geographic variation gives no direct evidence of past interbreeding, but instead suggests a possible divergence in a plumage display signal. This evidence supports the conclusion (Fjeldså 1982) that the Andean Coot should be maintained as a separate species, *Fulica ardesiaca*.

The variation in tail-pattern was overlooked by previous students of Andean Coots. As my data show no overlap in this character between birds from the Andean puna zone and birds from the paramos of Nariño and Ecuador and from coastal Peru, a recognition of subspecies appears to be justified on the basis of this character. Since the species as such was described first from the puna zone (Junín, 11°S, 76°W, 1843), the puna zone populations should be ranked as nominate subspecies. As also Morrison's (1939) name *peruviana* refers to birds from Junín, a new name must be proposed for the aberrant populations found further north:

Fulica ardesiaca atrura subsp. nov.

Diagnosis. Differs from the nominate subspecies as the undertail covert feathers are not purely white, but have black inner webs and more or less extensive black streaking and freckling also on the outer webs; in some individuals, in fact, the undertail coverts are nearly completely black.

Distribution. In paramos and some lowland swamps from Nariño in southern Colombia through Ecuador and coastal Peru south to Lima. As Andean Coots from paramos in northern Peru were not represented in the present data, their racial attachment remains unknown.

Type specimen. Zool.Mus.Univ.Copenhagen 37.891, Ecuador, 7 October 1909.

Material examined. 77 ad. Andean Coots, including 25 of this taxon.

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A new species of Thicket Warbler *Cichlornis* (Sylviinae) from Bougainville Island, North Solomons Province, Papua New Guinea

by Don Hadden

Received 13 July 1982

The little known and elusive genus of thicket-warblers, *Cichlornis,* was first described by Mayr (1933) from a specimen taken in 1926 by R. H. Beck, who collected one bird from mountain forest (2500 ft) on Espiritu Santo in Vanuatu. Mayr named this unique specimen *C. whitneyi.* Another male and 3 females were also taken from Espiritu Santo between 1933 and 1935 by A. J. Marshall and T. Harrisson (Cain & Galbraith 1955). A new subspecies, *C. w. turipavae,* was also described by Cain & Galbraith in the same paper from a single specimen taken by native hunters from Turipava (4100 ft) on Guadalcanal. Two other *Cichlornis* specimens were collected in December

1958 at 5200 ft in the Whiteman Mountains, central New Britain by E. T. Gilliard (1960). These proved to be of a distinct species and were named *Cichlornis grosvenori*.

My discovery of the Bougainville population of Cichlornis came about because I was trying to track down a rumour of nesting shearwaters. During my years (1976–1980) on Bougainville I had constantly asked local villagers if they knew the whereabouts of the nesting sites of birds that had webbed feet and lived in holes in the ground in high mountains. Eventually, I was informed by Tony Anung from a village behind Arawa, that he had found the nest of a bird in a hole in a bank near the top of the Crown Prince Range. Accordingly I arranged to spend a long weekend camping at that site to check on this nest and to search for additional shearwater sites. After about 7 hours walking we had progressed from sea level to 5000 ft and were at the nest site. The nest was not that of a shearwater, but obviously of a passerine of some sort. We camped over a ridge close to the nest site and while my guides spent the following day in the forest searching for shearwater nests, I erected mist nets on the ridge above camp. It was in one of these nets that a *Cichlornis* sp. was taken. By the time we had struck camp and returned to Arawa the *Cichlornis* had started to decompose slightly, but the skin was saved and is now lodged in the American Museum of Natural History (AMNH). It proved to be a new species.

Cichlornis llaneae sp. nov.

Holotype: AMNH No. 824713, sex ?, apparently adult, from Crown Prince Range 5000 ft (1550 m), central Bougainville Island, North Solomons Province, Papua New Guinea, approximately 6°19'S, 155°30'E; collected by Don Hadden, 17 June 1979.

Distribution: Known only from the type locality.

Description of holotype: Head, wings, back and rump sooty olive; feathers of rump not especially elongated or fluffy. Supra-orbital line rich cinnamon-rufous and a distinct black area before, behind and beneath the eye forming a small mask. The lesser wing coverts black, tipped with brownish olive, giving a scalloped appearance. Throat and upper breast cinnamon-rufous. Lower breast and abdomen cinnamon-rufous, shading into dull brown. Flanks and lower abdomen dull brown. The rectrices were in sheath, but black and acuminate, not spine-tipped. The shafts were not stiffened. Legs and bill dark.

I have much pleasure in naming this new thicket warbler for my wife Llane Hadden.

Measurements of type: Wing 73.5 mm, tail in sheath, bill from base 21.0 mm, tarsus 26.0 mm.

Additional remarks: Comparison of *C. llaneae* with types of *C. grosvenori, C. w. whitneyi* and *C. w. turipavae* give the following distinct differences:-

Throat and upper breast of *C. llaneae* cinnamon-rufous, whereas the other 3 populations are tawny buff, *C. w. whitneyi* being the lightest of the three. Lower breast and abdomen of *C. llaneae* cinnamon shading into dull brown, whereas the other 2 species are lighter tawny buff, except that in *C. grosvenori* there is a lighter central area with some feathers mottled buff and brown. The head and back of the other 2 species are brownish olive, whereas they are

TABLE 1

Measurements of known specimens of *Cichlornis*

		Sex	Wing	Tail	Bill from base	Tarsus
C. w. whitneyi (Type)	(1)	♂	72.0	70.0 +	21.0	28.0
	(1)	♂	68.5	65.0	20.0	27.0
	(2)	♀	63.0	57.0	20.0	25.5
	(2)	♀	60.0	56.5 +	19.5	26.0
	(2)	♀	64.5	68.0	18.5	25.0
C. w. turipavae (Type)	(2)	♂	65.5	76.5	—	27.5
C. grosvenori (Type)	(3)	♀	72.0	59.0	20.0	31.0
	(3)	♂	71.0	65.0	19.5	31.0
C. llaneae (Type)		?	73.5	—	21.0	26.0

(1) Measurements from Mayr, 1933, p. 4
(2) Measurements from Cain & Galbraith, 1955, p. 91
(3) Measurements from Gilliard, 1960, p. 3

sooty olive in *C. llaneae*. The supraorbital line is rich cinnamon-rufous in *C. llaneae,* but the other two species have tawny buff lines. The black mask of *C. llaneae* is midway in size between the small mask of *C. whitneyi* and the large mask of *C. grosvenori.* The lesser wing coverts on *C. llaneae* are markedly scalloped, whereas there is only slight scalloping on *C. w. whitneyi* and none at all on *C. w. turipavae* or *C. grosvenori.* The most striking difference is that the rectrices of *C. llaneae* are not disintegrated at the tips nor the shafts stiffened as in the other 2 species. In addition the tail of *C. llaneae* is black, not brown as in the other 2 species. The fact that the tail feathers of the type of *C. llaneae* are in sheath precludes further comparison, but there is no indication that this specimen is immature. It seems more likely that the simultaneous regrowth of the rectrices is due to the bird having suffered an accident.

The wing of *C. llaneae* is much more rounded than the wings of *C. whitneyi* and *C. grosvenori.* The outermost primary (No. 1) is not much shorter than No. 2. Primaries 2, 3, and 4 are equal to or slightly longer than No. 5. In *C. whitneyi* and *C. grosvenori,* primary No. 1 is much shorter than No. 2, and No. 2 is significantly shorter than No. 3, while Nos. 3 and 4 are usually slightly longer than No. 5. The tarsus is shorter and the legs and feet appear weaker in *C. llaneae*.

In some respects the new bird is intermediate between *Cichlornis* and *Ortygocichla* (including *Trichocichla*). A case might be made for describing the Bougainville form as a new genus but very little information is available on these genera, and *C. llaneae* is definitely closest to *Cichlornis*. R. Orenstein suggests (*in litt.*) that these 2 genera should be included in a larger genus, *Megalurulus,* to include *M. mariae* of New Caledonia, *Trichocichla rufa* of Fiji and *Buettikoferella bivittata* of Timor. However with so little information available, it seems preferable at present not to speculate further on generic limits. Obviously a complete revision is much needed.

Description of nest and egg: The passerine nest mentioned above had been placed in a niche in a vertical wall of a creek. About 1 m downstream from the nest the creek disappeared underground and so the nest site was surrounded by walls on three sides. It was about 2 m above the bed of the creek, and the width between the creek walls was 2–3 m. Very little water was trickling down, the weather having been fairly dry the previous week. The nest was made of dark vegetation with a lining of lighter, finer fibres contrasting with the dark outer parts of the nest. A lip of dark vegetation hung down the wall from the nest, which contained 1 egg 25 x 18 mm and was obviously deserted. The oval egg was a light cream colour and was entirely covered with small brown spots, more heavily at the thicker end where they formed a brownish cap. The egg and nest are in the AMNH.

This nest and egg, found in June 1979, turned out to be those of *Cichlornis llaneae,* but this was not known until one year later when I again camped in the area in June and an identical nest was found in the very same niche as the one I had first seen. For further information on this nest and 2 other specimens of *C. llaneae* and photographs of the type and the nest, see Hadden (1981).

Acknowledgements: My wife Llane Hadden has spent many days alone while I have pursued my interests in photography and ornithology. It is as a token of gratitude for her support and interest that I have named this new species for her. I am also grateful to Elliot Harding, Francis Munau and Tony Anung and other village men without whose help I would not have found the thicket-warbler area. Considerable help has also been given by Jared Diamond and R. Orenstein, and in particular I am much indebted to Mary LeCroy and Ian Galbraith who gave invaluable assistance with comparison of specimens from the AMNH and BMNH respectively, as well as their time and expertise, especially that of Mary LeCroy in helping to draft this note.

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The relationship of male Lesser Honeyguides *Indicator minor* with duetting barbet pairs

by Lester L. Short and Jennifer F. M. Horne

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Our field studies of barbets (Capitonidae) in East Africa have been disrupted regularly by honeyguides (Indicatoridae) interacting with the barbets, and with each other. We particularly elicit approaches by honeyguides when we use our tape-recorder to play back barbet duets, the approaches being to us or to the barbets, which are also stimulated by our playback activities. We reported (Short & Horne 1979) on these responses by *Indicator variegatus, I. minor* and probably *I. narokensis* to various barbet species and to playback of the barbets' voices. In that report we posed several questions relating to the honeyguide–barbet interactions. Further data now available allow us to narrow the quest for reasons underlying these honeyguide-barbet interactions.

If we assume that, generally, the honeyguides coming to barbet vocal activities are females seeking a nest in which to lay an egg, since honeyguides are nest parasites especially of barbets (Friedmann 1955, 1968), the close approach of honeyguide females to singing, duetting barbets nevertheless would appear non-functional, the parasite being "interested" presumably in the hosts' nest, not in the other activities of the barbets. We suggested (1979: 17) that honeyguide females, and perhaps males, might use those activities of barbets associated with breeding as "cues" that could trigger breeding readiness in honeyguides and even bring together prospective honeyguide mates. However, we remarked that such functions seemed both energetically wasteful and disadvantageous in that they arouse the barbets and facilitate their recognition of the honeyguides as harmful, particularly since barbet pairs often have helpers. The non-breeding helpers presumably could gain experience that would eventually increase the likelihood of successful breeding if they were to learn to attack and drive honeyguides from their vicinity.

OBSERVATIONS

In our garden outside Nairobi we can at any time of year elicit White-headed Barbet *Lybius leucocephalus* responses to playback of its voice, the responses varying from chattering, aggressive overflights and close approach to the recordist, to excited calling and "greeting ceremonies" (see Short & Horne 1982). Between July and January we hear at intervals aggressive trills of Lesser Honeyguides *Indicator minor* in the garden. At those times, repeated playback of the barbets' greeting ceremonies inevitably results in the appearance and approach of a Lesser Honeyguide which, when perceived by the barbets, is chased by one or more of them. The honeyguide often returns, and indeed may retaliate by attacking one or another of the barbets.

Occasionally, *two* Lesser Honeyguides would simultaneously approach the playback recordist (this species is variable in plumage, but most individuals can be identified as *I. minor* by size and by the presence of a distinct moustachial stripe). In some 20 of such cases observed sporadically between 1979 and 1981, the honeyguides would attack one another, the pursuit taking precedence over honeyguide-barbet interactions (leaving the barbets perched, often "panting" from the exertion of chasing the speedier, more manoeuverable honeyguide). We assume that the Lesser Honeyguide parasitizes *L. leucocephalus,* for we have reported (Short & Horne 1979) this honeyguide entering and being evicted from a nest of *leucocephalus.*

Our studies of the Black-collared Barbet *Lybius torquatus* (Short & Horne 1979, 1982) in coastal Kenya have provided over 2000 additional observations of honeyguide-barbet interactions. (Less frequent interactions of honeyguides with the barbets *Lybius melanopterus, L. guifsobalito* and *L. rubrifacies* recorded in our unpublished notes are not reported here.) *Lybius torquatus* is a frequent host of *Indicator minor* (Friedmann 1955, Ranger 1955). We have supplemented our observations by collection of 6 Lesser Honeyguides taken (after some minutes of observation) from beside duetting, displaying pairs of Black-collared Barbets south of the Nature Reserve in Arabuko-Sokoke Forest (Britton & Zimmerman 1979). Five of the 6 honeyguides collected proved to be males, much to our surprise, and 26 seemingly separate, aggressive, sustained honeyguide–honeyguide interactions suggest that many if not most of these also involve males.

On the afternoon of 7 July 1979 we collected a Lesser Honeyguide that had been following a (playback-stimulated) frequently duetting pair of *L. torquatus* for some 15 minutes, moving from one duetting post to another, perching close to the barbets, interrupting them, being chased, and then returning to them. It was a male with enlarged (4 x 3 mm) testes. The next day we worked with another barbet pair, and at 08:00 spied a honeyguide following the pair, but at a greater distance than the previous day's bird. This individual followed the barbets on 4 consecutive flights to singing sites (trees scattered about their territory) and watched them sing 3 duets. In most cases we found that a honeyguide attracted to a pair of duetting barbets approaches them closely, landing beside or even between them, thus disrupting any duet attempt, though the barbets may sing an interrupted duet or perform a greeting ceremony. In this instance, however, the honeyguide perched 3–5 m from the barbets and did not attempt to join them or fly directly to the sites they occupied. We collected the honeyguide from a perch 3 m from the barbets; it was a female in slight moult but with a somewhat enlarged ovary.

In November 1981 we worked in the Arabuko-Sokoke Forest with a pair of Black-collared Barbets that were duetting regularly and excavating a cavity, whether for roosting or nesting is uncertain. At 06:30 on 19 November we observed one of the barbet pair chasing a honeyguide through the trees. The barbet then returned to its former perch and duetted with its mate. A honeyguide (uncertainly the same one) again appeared, flying to the barbet pair; all 3 flew off in a chase. We then saw what we thought was a barbet in flight fighting with the honeyguide, but both birds proved to be honeyguides and judged by voice were Lesser Honeyguides. They circled back and forth in pursuit of each other, tails fanned to exhibit the tail pattern, and called (trill calls); several times they grappled in the air, before they went off in a long pursuit flight. We stayed with the barbet pair and at 07:00 heard a honeyguide's trill call to which we played back a Lesser Honeyguide call (one recorded by C. Chappuis in Malawi), and this brought a honeyguide to us, calling. It was chased about by one barbet as we recorded the honeyguide's "ta-wee-wit" call – a major vocalization of *I. minor,* song-like, but not the note given at a call site reported by Ranger (1955) – and its trill, and then we collected it from beside the 2 barbets. It was a male *I. minor* with testes 4 x 3 mm and 3 x 3 mm (left and right respectively). We heard 2 calls and had one sighting of a second honeyguide about the barbets during the next 40 minutes. Late that day we "lost" the barbet pair (they proved later to have gone north, presumably toward a roosting hole, between 16:00 and 17:00 hours), but as we repeatedly played back their duet a Lesser Honeyguide circled back and forth overhead, "searching" for the barbets. The honeyguide stayed with us for 10 minutes flying about us from perch to perch, then flew off. A short while later we played back the barbets' duet and had 2 honeyguides circle overhead then go off in chase.

Nearby, at 17:20 hours on the same day our barbet playback brought to us a single *Lybius torquatus* and 2 honeyguides, apparently *Indicator minor*. The honeyguides seemed to try to approach the barbet, but the barbet attacked one honeyguide as the other honeyguide also attacked it, and all 3 birds circled in a furious "dogfight". We were unsuccessful in attracting a second barbet, but the one barbet was engaged with the 2 honeyguides, and they with each other, for 50 minutes. The barbet chasing one honeyguide seemed to trigger an attack by the second honeyguide on the first, and this appeared to "confuse" the barbet, which shifted its attack to the other honeyguide. The barbet tired more readily and when it perched, the 2 honeyguides flew about in sweeping circles or directly off in a line, then back, still in pursuit of each other, to the barbet.

We continued working with several barbets, seeing honeyguides daily as they came to our playback of the barbets or to the calling of the barbets themselves. Not only the barbet duets but even greeting ceremonies and the sounds accompanying their courtship feeding attracted honeyguides, causing them to approach. At 08:05 on 21 November 1981, we watched 2 honeyguides attracted by the playback of a *Lybius torquatus* greeting ceremony as they engaged in a chase near the excavating pair of barbets. The 2 honeyguides perched in a tree north of the excavation, gave low grating calls with tails fanned, bowing to each other and raising and lowering the (spread) tail. One of the honeyguides was notably smaller than the other and held its bill open, but gave the same displays, its call being a buzzy trill. The 2 flew in pursuit of each other, circled and came together grappling, floating downward toward the ground clutching each other, with tails spread, then breaking apart. The larger bird flew away, and the other followed. At 08:18 we played a duet of *L. torquatus,* instantly bringing a moustached *I. minor* to us, then a second honeyguide; they attacked one another, then engaged in a fast chase, bursting through undergrowth and canopy, with tails spread, pecking and hitting each other in flight. They disappeared in a chase to the southwest. Again we brought the same 2 honeyguides back, this time with playback of the barbets' greeting ceremony, and the honeyguides fought and chased round and round until, at 08:25, a barbet joined the fray, attacking one honeyguide; but before the chase had gone 20 m the same honeyguide was chasing the barbet, being much faster in flight. After a while they perched side by side, the barbet "panting", and then gave chase again. The second honeyguide, apparently watching, overflew and disappeared as the barbet and first honeyguide chased to and fro.

At 07:43 on 22 November 1981 we employed honeyguide calls to bring the barbet pair to their excavation. After the barbets duetted near the excavation a honeyguide joined them. The barbets called and flew at the honeyguide, which zoomed upward in the air (the barbets dropped back down to a tree) and then without calling and with tail spread widely in a somewhat stilted flight, flew twice in a circle about 200 m in diameter centred over the area of the barbets' excavation. A honeyguide was near this pair until 09:00 on that day, although we were unsuccessful in attracting honeyguides to this same pair of barbets later in the morning. In fact our rate of success in drawing honeyguides to barbet playback was greatest before 10:00 and after 16:00; the barbets responded at any time, but their response was more sustained, with more frequent duets and less rapid habituation, to playback early and late in the day. Next day (23 November) we worked close to the excavating pair of barbets. Two honeyguide trills were heard between 07:00 and 07:26, but we did not playback, preferring to watch the behaviour of the barbets. At 08:10 the barbet pair flew to a tall dead tree and duetted, a honeyguide instantly appearing and getting between the duetters. The "lead" barbet, namely the one which initiated movement to duetting sites and was presumably the male, viciously attacked the honeyguide. The barbet pair then flew and the honeyguide joined them and followed the lead barbet to another tree, where the 2 barbets performed their greeting ceremony. Again accompanied by the honeyguide, the barbets then returned to the dead tree and attempted a duet. At this point we fired at and missed the honeyguide; but one playback of the barbets' duet instantly brought the honeyguide, trilling, and then the barbet pair, back to the dead tree. We collected the honeyguide from within 1 m of this barbet pair at 08:30. It proved to be a male *I. minor* with testes 3 x 3 mm.

At 08:37, at the same site we played back the *L. torquatus* duet, and were rewarded by approach first to us, then to the excavating barbets, of another honeyguide. This honeyguide was chased by one barbet, but evaded it and flew back to the tree bearing the incompleted excavation. It landed near the excavation, then flew up to a perch and trilled. The barbets first gave chase, then the honeyguide chased one barbet off to the northwest. After a few minutes we played back a barbet duet and a barbet and honeyguide appeared together in a chase (apparently of the honeyguide by the barbet) before perching in the same dead tree from which we had just taken the male honeyguide as described above. A second barbet joined the first barbet and honeyguide and the 2 barbets attempted to duet, the honeyguide being perched only 1 m away when we collected the latter (at 08:57). This bird too was a male (testes 3.5 x 3.5 mm and 3 x 1.5 mm, left and right respectively).

Just after 09:10, having glimpsed yet another honeyguide nearby, we played the barbets' duet at a point between the tree bearing the excavation and the dead tree referred to above. The pair of barbets appeared immediately, with a honeyguide close behind them. A chase occurred, the lead barbet chasing the honeyguide, the latter reversing the pursuit, and over and over again. Another playback brought back the lead barbet, followed by the honeyguide, and then the second barbet; they all perched just west of the excavation site. L.L.S. went to the dead tree from which the 2 previous honeyguides had been collected, and played back the barbets' duet, bringing in all 3 birds. The barbets managed to duet as the honeyguide flitted about them in a tight circle; but, when the duet ceased the honeyguide moved away from the barbets and was collected (at 09:25). This honeyguide, taken from the same tree as the previous 2, and from beside the same pair of barbets as the previous 2, as well as the male of 19 November, also was a male, with testes 3 x 2 mm and 4 x 3 mm (left and right respectively, a reversal from the usual left testis being longer). Thus, within one hour, 3 different male Lesser Honeyguides were collected as they interacted strongly with the same pair of barbets in the same tree.

This barbet pair continued that morning to react, by duetting, to playback of their duet. One other dark-coloured honeyguide, of uncertain species, was seen to the west of this pair before we left the site and the area later that morning.

The testes of the Lesser Honeyguides that we collected seem sufficiently enlarged to consider the birds as in breeding or pre-breeding condition (also *fide* R. Payne). However, we saw no copulations of honeyguides, nor did the Lesser Honeyguide males employ singing or sites from which to call (Ranger 1955) in order to attract females. The vocalizations of the honeyguides during their interactions with each other and with the barbets were usually trilling calls and squeak calls, which are those associated with aggression (Short & Horne 1979). It may be that the behaviour of the Kenyan honeyguides differs from that in more seasonally oriented populations in southern Africa (note, for example, the large testes of both July and November Lesser Honeyguides). We ourselves have noted that gonads are somewhat enlarged in most barbets and honeyguides that we have collected (even in subadults of such barbets as *Trachyphonus darnaudii*) in Kenya, suggesting that irregularity of the rains or other perhaps associated factors demand a state of readiness to breed (or to defend resources necessary for breeding) all the year round.

The above observations are summarized from our field and tape-recorded notes. We have noted many other honeyguide responses to calls and duets of various barbets (including, e.g. *I. minor* responses to *L. melanopterus* and *L. guifsobalito*), and also frequent honeyguide–interactions. The latter include some interspecific interactions (e.g. of *I. minor* to *I. narokensis,* of *I. indicator* to *I. variegatus,* of *I. variegatus* to *I. narokensis,* and of *I. indicator* to *I. minor*) as well as over a hundred instances of apparent *I. minor* intraspecific chases in the vicinity of barbet pairs. The behaviour of *I. indicator* (which is common in the areas worked) in regard to the barbets and our playback differed markedly from that of *I. minor.* Only rarely did a Greater Honeyguide appear when we played barbet duets, and it would either leave after a look at us, chase a Lesser Honeyguide if one was present, or (twice) commence guiding calls directed at us. Unfortunately not all of the honeyguides that we studied could be observed closely; some *I. minor* have very weak malar stripes that are not readily apparent (e.g. there is only a trace of the malar stripes in one of the 4 males just described, and the malar area varies in colour considerably in the other 3 birds) and small sized *I. minor* can be mistaken for *I. narokensis* or *vice versa.* Hence, identification of a honeyguide species (let alone determination of its sex) in the field was not always possible. Nonetheless, it is apparent that many, if not most (possibly nearly all) the honeyguide–honeyguide and honeyguide–barbet interactions involved male honeyguides.

Discussion

We have established that Lesser Honeyguides of both sexes, including many males, are attracted to singing (duetting) pairs of certain barbets. There is ample evidence that 2 or perhaps more honeyguides are attracted simultaneously to duetting barbets (or to playback of their duets), and that when this occurs they engage in fights associated with the presence and location of the barbets or of the latters' excavations. The collecting of 4 male Lesser Honeyguides, 3 within one hour in intimate association with the same duetting barbet pair clearly suggests that there is benefit to the males in such association, and the fighting we have described suggests that the honeyguides are exhibiting themselves with, and defending "ownership" of, particular barbet pairs against one another.

The possibility also exists (Short & Horne 1979) that the honeyguides could utilize the duetting barbets as "cues" triggering or enhancing reproductive development in the honeyguides (of both sexes), helping to bring them reproductively into synchrony with their hosts. This could be accomplished by the honeyguides observing the barbets without actually approaching them and interfering with their displays. On the other hand, the interactions of the honeyguides with barbets may create a disturbance which draws the attention of male and female honeyguides to the presence of a conspecific territorial male. A female Lesser Honeyguide, by following a barbet pair, but not so closely as would a male, perhaps places herself in a favourable position from which to attract (through the barbets' activities) the attention of a possible mate.

We have no data on take-over of barbet holes by honeyguides. It is not even known where honeyguides roost, nor whether or not they require a cavity. They do not seem to usurp roosting holes from the barbets, for we have frequently watched barbets go to roost and in all cases in which honeyguides had been accompanying a barbet pair, the honeyguides disappeared well before the barbets roosted.

We do not know the number of Lesser Honeyguides that may both approach a duetting pair of barbets already "claimed" by another honeyguide and then depart without attracting our attention. We have heard calls of honeyguides at a distance when observing one honeyguide following a barbet pair; but whenever 2 honeyguides were present with a pair of barbets there have been pursuits and apparent or actual conflicts (some conceivably male-female courtship chases), resulting in only one honeyguide being left with the barbets. There also have been 7 instances of a small honeyguide, presumably *I. narokensis* (see Short & Horne 1979), present with a barbet pair and later replaced by a larger, moustached *I. minor*. Naturally, in some Lesser Honeyguide–barbet pursuits passing out of our view, the returning honeyguide may not have been the same individual. (We have circumstantial indications of this possibility from lengthy pursuits out of our sight accompanied by trilling bursts as if from 2 honeyguides.)

Further corroboration of these results is desirable, including their extension to other species of *Indicator*. The employment of barbet pairs in territorial proclamation, or as an essential element, of a honeyguide territory is intriguing and unique in birds. Indeed, territoriality itself and the pair bond in honeyguides require investigation, especially in view of the lek-like mating system of *I. minor* described by Ranger (1955) in southern Africa, and the fact that such behaviour contrasts strongly with that of host–parasite relations of the parasitic cuckoos (*Cuculus* spp.) and cowbirds (e.g. *Molothrus ater*), which we have personally observed, and indigobirds (Payne 1973).

Each female Lesser Honeyguide requires several host nests. Possibly a male, defending a territory containing several pairs of barbets, would thus try to ensure that only one egg (fertilised of course by the territorial male) is laid per host nest. (Note that young honeyguides kill other young in a nest, hence 2 honeyguide eggs in a nest would mean the death of one of the hatchling honeyguides.) Since honeyguides have hosts other than barbets and woodpeckers, one wonders if these other hosts' nests are used to "dump" eggs when preferred hosts are unavailable. In any event, further data are needed to treat these possibilities.

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— 1982. Vocal and other behaviour of Kenyan Black-throated Barbets *Lybius torquatus*. *Ibis* 124: 27-43.

Addresses: L. L. Short, American Museum of Natural History, New York, New York 10024, U.S.A.
J. F. M. Horne, P.O. Box 24622, Karen, Nairobi, Kenya.

Books Received

Flint, P. R. & Stewart, P. F. 1983. *The Birds of Cyprus*. Pp. 182. Maps, appendices. British Ornithologists' Union, c/o The Zoological Society, Regent's Park, London NW1 4RY.

£12 (£10 to members if ordered before end May '83).

This check-list, the sixth in the series of annotated avifaunal lists being published by the BOU, comprehensively covers an island of major importance to Palaearctic/African migrants crossing the eastern Mediterranean, but where even today several million birds are killed annually, mainly illegally. Besides the systematic list covering some 330 species and usefully providing a yardstick for estimating future population changes, there is discussion of past and present Cyprus ornithology, geography, geology, climate, vegetation, migration, breeding and conservation. The appendices include details of ringing recoveries, biometric data and sites of ornithological interest.

Dunning, J. S. 1982. *South American Land Birds. A photographic aid to identification.* Pp. 364.

Over 1000 coloured photographs. End paper maps. Harrowood Books, Newton Square, Pennsylvania, USA. $37.50 or $27.50 in paperback.

The author, with the expert collaboration of R. S. Ridgely, has produced a book identifying over 2500 South American birds, 1112 of them in clear cut colour portrait photographs, 8-12 to a page, with useful brief notes and tiny distribution maps. It is a remarkable achievement. The technique, developed over 15 years, of trapping birds and then photographing them, when they have regained a relaxed posture, in what amounts to a mini portable studio in the field, has never been exploited on such a scale or so successfully. The colours in some plates may appear slightly distorted, probably due to techniques and colour reproduction, but they are remarkably few and the resulting portrait gallery is as yet unique.

The author's main concern, in his capacity as a Director of the World Wildlife Fund, is to alert more people to the dangers menacing South American birds and he is generously donating all royalties to the WWF for purchase and protection of their threatened habitats.

NOTICE TO CONTRIBUTORS

Papers, whether by Club Members or by non-members, should be sent to the Editor, Dr. J. F. Monk, The Glebe Cottage, Goring, Reading RG8 9AP, and are accepted on the understanding that they are offered solely for publication in the *Bulletin*. They should be typed on one side of the paper, with double-spacing and a wide margin, and submitted with *a duplicate copy on airmail paper*.

Scientific nomenclature and the style and lay-out of papers and of References should conform with usage in this or recent issues of the *Bulletin*, unless a departure is explained and justified; but informants of unpublished observations (usually given as *in litt.* or pers. comm.) should be cited by initials and name only, e.g. "... catches wasps (B. Eater)", but "B.B.C. Gull informs me that ...". Photographic illustrations, although welcome, can only be accepted if the contributor is willing to pay for their reproduction.

An author wishing to introduce a new name or describe a new form should append *nom., gen., sp.* or *subsp. nov.*, as appropriate, and set out the supporting evidence under the headings "Description", "Distribution", "Type", "Measurements of Type" and "Material examined", plus any others needed.

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Only Members of the British Ornithologists' Union are eligible to join the Club: applications should be sent to the Hon. Treasurer, Mrs. D. Bradley, 53 Osterley Road, Isleworth, Middlesex, together with the current year's subscription. The remittance and all other payments to the Club should always be in *sterling* unless an addition of £1.00 is made to cover bank charges for exchange, etc. Payment of subscription entitles a Member to receive all *Bulletins* for the year. Changes of address and revised bankers' orders or covenants (and any other correspondence concerning Membership) should be sent to the Hon. Treasurer as promptly as possible.

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CORRESPONDENCE

Correspondence about Club meetings and other matters not mentioned above should go to the Hon. Secretary, R. E. F. Peal, 2 Chestnut Lane, Sevenoaks, Kent TN13 3AR.

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It is hoped to send the *Bulletin* by Bulk Air Mail to all European destinations outside the British Isles and by Accelerated Surface Post to almost every destination outside Europe commencing with Vol. 103 No. 1. This will only apply to copies despatched from the printers on publication. Those whose subscriptions have not been received by the beginning of a month of publication will have their copies despatched by surface mail, after their current subscription has been paid.

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British Ornithologists' Club

Edited by

Dr. J. F. MONK

Volume 103 No. 2 June 1983

FORTHCOMING MEETINGS

Tuesday, 5 July 1983, in the Senior Common Room, **SHERFIELD BUILDING,** Imperial College, S.W.7 at 6.30 p.m. for 7 p.m., **Mr Paul Goriup** will speak on *Bustards*. He will be speaking on bustards generally and, more particularly, on species that he has studied in the field, which include the Great Bustard *Otis tarda* and the Houbara Bustard *Chlamydotis undulata*. Those wishing to attend should send their acceptance with a cheque for £6.40 a person to reach the Hon. Secretary at 2 Chestnut Lane, Sevenoaks, Kent TN13 3AR (telephone Sevenoaks [0732] 450313) not later than first post on Thursday, 30 June.

PLEASE NOTE THAT THIS IS NOT OUR USUAL VENUE. THE SHERFIELD BUILDING IS ON THE **WEST** SIDE OF EXHIBITION ROAD IN THE MAIN BLOCK OF IMPERIAL COLLEGE AND LIES A SHORT DISTANCE NW OF THE CARILLON TOWER.

Tuesday, 20 September 1983, at Imperial College in the Senior Common Room, SOUTH SIDE, PRINCE'S GARDENS, S.W.7. at 6.30 p.m. for 7 p.m., **Mr George A. Smith, Jr.,** widely known for his work on parrots, will speak on *Convergence and Radiation in Parrots*. Those wishing to attend should send their acceptance with a cheque for £6.40 a person to reach the Hon. Secretary (address above) not later than first post on Thursday, 15 September.

THIS IS OUR USUAL VENUE AND IS ON THE **EAST** SIDE OF EXHIBITION ROAD.

Tuesday, 29 November 1983 — 750th MEETING OF THE CLUB. At the same time and place as the previous Meeting, the Survival Anglia film "Almost a Dodo" on the Shoebill will be shown.

Tuesday, 10 January 1984. Mr M. K. Swales will speak on The Denstone College Expedition to Inaccessible Island (South Atlantic), with an introduction by Sir Hugh Elliott.

Many copies of the *Bulletin* must get thrown away annually by Members, copies which the Club would welcome. Please send all unwanted copies, and ask your Executors to do the same, to the Hon. Treasurer at 53 Osterley Road, Isleworth, Middlesex TW7 4PW at any time. Postage will be refunded if requested.

COMMITTEE

B. Gray (*Chairman*)
R. E. F. Peal (*Hon. Secretary*)
Dr. J. F. Monk (*Editor*)
P. J. Conder, O.B.E.
S. A. H. Statham
Revd. G. K. McCulloch, O.B.E. (*Vice-Chairman*)
Mrs. D. M. Bradley (*Hon. Treasurer*)
R. A. N. Croucher
D. Griffin

Bulletin of the
BRITISH ORNITHOLOGISTS' CLUB

Vol. 103 No. 2 Published: 20 June 1983

ANNUAL GENERAL MEETING

The Annual General Meeting of the British Ornithologists' Club was held at Imperial College, London, S.W.7 on Tuesday, 17 May 1983 at 6 p.m. with Mr D. R. Calder in the Chair. Thirteen Members were present.

The Minutes of the Annual General Meeting held on 18 May 1982 (*Bull. Brit. Orn. Cl.* 102:43 & xxiv) were approved and signed by the Chairman.

The Report of the Committee for 1982 was presented; on the proposal of Mr P. J. Conder, seconded by the Revd. G. K. McCulloch it was approved unanimously that the Report be received and adopted. The Accounts for 1982 were presented by the Hon. Treasurer, who explained the salient points, including the increased excess of income over expenditure. She mentioned that the Investment Reserve of £20 in the previous year's figures had become unnecessary upon the redemption at par in 1982 of the holding in 8½% Treasury Loan 1980/82 and had been credited to Investment Income (General Fund) during 1982. In reply to an enquiry, it was explained that there was no entry in the Balance Sheet for the property "Clovelly" at Tring, as the Club was currently a tenant at a nominal rent but subject to the fulfilment of conditions prescribed in the Will of the late Herbert Stevens. On the proposal of Dr D. W. Snow, seconded by Captain Sir Thomas Barlow, the Accounts for 1982 were unanimously approved.

The Editor reported that papers for the *Bulletin* were mostly published within six to nine months of acceptance but that he hoped to reduce the waiting time by publication of larger issues as appropriate. There were fewer papers on Africa but more on the Far East and South America.

There being no nominations additional to those of the Committee, the following were declared duly elected:

Chairman:	Mr B. Gray (*vice* Mr D. R. Calder, who retired on completion of his term of office and was ineligible for re-election).
Vice-Chairman:	The Revd. G. K. McCulloch, O.B.E. (*vice* Mr B. Gray, on his election as Chairman).
Hon. Treasurer:	Mrs D. M. Bradley (re-elected).
Hon. Secretary:	Mr R. E. F. Peal (re-elected).
Committee:	Mr D. Griffin, M.A., and Mr S. A. H. Statham (*vice* The Revd. G. K. McCulloch on his election as Vice-Chairman and Mr J. G. Parker, who retired by rotation and was ineligible for re-election).

The Editor proposed a vote of thanks to the retiring Chairman for all the work he had done for the Club, especially on legal matters concerning "Clovelly"; this was seconded by the Hon. Secretary and carried unanimously.

The Meeting closed at 6.20 p.m.

Income and Expenditure Account for the year ended 31st December 1982

INCOME	1982 £	1982 £	1981 £	1981 £
Subscriptions Received				
Members Subscriptions	2,324		2,189	
Subscribers	2,734	5,058	2,506	4,695
Donations Received		24		101
Investment Income				
General Fund	1,209..		686	
Trust Fund	42	1,251	42	728
Rent Received				
Property Clovelly Tring	1,300		936	
Less: Repairs and Insurance	40	1,260	37	899
Income Tax Recovered				
Deeds of Covenant	197		206	
Other	15	212	15	221
Sales of Bulletin—Back Numbers		821		1,019
Meetings—Income	1,141		1,107	
Expenditure	1,237	(96)	1,094	13
		8,530		7,676
EXPENDITURE				
Printing & Publication of Bulletin	4,271		4,102	
Separates	334		261	
	4,605		4,363	
Less: Authors' costs	379		532	
	4,226		3,831	
Postage of bulletin	407		361	
Publication and Distribution Costs re Current Issues of Bulletin	4,633		4,192	
Re-printing Bulletin back numbers	281		115	
Publicity Expenditure	35		315	
Printing, Postage and Stationery	360		400	
Telephone	45		33	
Insurance	25		20	
Notices of Meeting	54		35	
Audit and Accountancy Charges	90		75	
Bank Charges	5		3	
Miscellaneous Expenditure	35	5,563	47	5,235
Excess of Income over Expenditure		£2,967		£2,441

Balance Sheet as at 31st December, 1982

	1982 £	1982 £	1981 £	1981 £
General Fund				
Balance at 31st December 1981	5,052		2,611	
Add: Excess of Income over Expenditure	2,967	8,019	2,441	5,052
Trust Fund—F. J. F. Barrington Legacy				
Balance at 31st December 1981		445		445
Stevens Bequest Fund				
Balance at 31st December 1981	100		—	
Add: Proceeds from sales during year	2,156	2,256	100	100
		£10,720		£5,597
Represented by:—				
General Fund Investment				
£2,101 10¼% Exchequer Stock 1995 at cost ..	2,019		—	
£100 8½% Treasury Loan 1980/82 at cost	—		100	
Less: Reserve brought forward	—	2,019	20	80
Trust Fund Investment				
£880 5½% Treasury Stock 2008/12 at cost		445		445
Current Assets				
Stock of Bulletin—Nominal Value	1		1	
Cash at Banks—Current Account	409		45	
—Post Office Giro Account	686		77	
—Deposit Account	2,608		2,134	
—National Savings Bank	7,786		5,667	
	11,490		7,924	
Less: **Current Liabilities**				
Subscriptions received in advance—Members	268		322	
—Subscribers ..	939		1,249	
Sundry Creditors	2,027		1,281	
	3,234		2,852	
Net Current Assets		8,256		5,072
		£10,720		£5,597

Accountants' certificate

We have prepared the attached Balance Sheet as at 31st December 1982 and Income and Expenditure Account for the year ended on that date from the books, vouchers and information presented to us and certify that they are in accordance therewith.

Hereford House, Hereford Gardens,
Pinner, Middlesex HA5 5JR 14th April, 1983

Searle and Company
Chartered Accountants

We approve the attached Balance Sheet as at 31st December 1982 and Income and Expenditure Account for the year ended on that date and confirm that to the best of our knowledge all transactions relating to the Club have been recorded.

DAVID R. CALDER *Chairman*
DIANA BRADLEY *Treasurer*

17*th May* 1983

The seven hundred and forty-fifth Meeting of the Club was held in the Senior Common Room, South Side, Imperial College, London, S.W.7 on Tuesday, 18 January 1983 at 7 p.m. The attendance was 20 Members and 8 guests.

Members present were: B. GRAY (*Chairman*). Captain Sir THOMAS BARLOW, R.N., P. J. BELMAN, K. F. BETTON, Dr G. BEVEN, Mrs DIANA BRADLEY, P. J. CONDER, R. A. N. CROUCHER, J. H. ELGOOD, D. J. FISHER, A. GIBBS, R. H. KETTLE, J. KING, Dr A. G. KNOX, Revd. G. K. McCULLOCH, D. G. MEDWAY, Dr J. F. MONK, R. E. F. PEAL, P. S. REDMAN and S. A. H. STATHAM.

Guests present were: Mrs B. M. GIBBS, P. J. HAYMAN, Miss PATRICIA C. MEDWAY, Dr AMICIA MELLAND, Mrs DIANA C. MONK, Mr and Mrs G. H. SEARLE and ROBIN W. WOODS.

Mr Robin W. Woods gave a much appreciated address on "Some Birds of the Falkland Islands", metioning a number of species with which he had been particularly familiar and especially his ringing studies of Dolphin Gulls *Leucophaeus scoresbii*.

The seven hundred and forty-sixth Meeting of the Club was held in the Senior Common Room, South Side, Imperial College, London, S.W.7 on Tuesday 8 March 1983 at 7 p.m. The attendance was 19 Members and 3 guests.

Members present were: D. R. CALDER (*Chairman*), Major N. A. G. H. BEAL, P. J. BELMAN, K. F. BETTON, Mrs DIANA BRADLEY, P. J. CONDER, R. A. N. CROUCHER, J. H. ELGOOD, D. J. FISHER, B. GRAY, D. GRIFFIN, P. HOGG, Dr A. G. KNOX, Revd. G. K. McCULLOCH, Dr J. F. MONK, R. E. F. PEAL, P. S. REDMAN, C. E. WHEELER and Lieut.-Col. T. C. WHITE.

Guests present were: Dr C. J. CADBURY, Mrs I. McCULLOCH and N. PICOZZI.

Dr C. J. Cadbury gave a stimulating address on "The Restoration of Habitats for Birds" He dealt especially on the need to make the best use possible on land that is available and on what can be achieved in this respect.

Bullfinches *Pyrrhula pyrrhula* and fruit crops

The following is a resumé of the talk given to the Club by T. J. Seller on 22 June 1982:

Bullfinches *Pyrrhula pyrrhula* are notorious pests of a wide range of fruit and soft fruit crops grown commercially, as well as of ornamental shrubs and fruit bushes in domestic gardens. They attack fruit buds between late November and April, and can decimate or destroy the potential crop. The timing and extent of damage varies markedly between years and some varieties of fruit seem to be more susceptible than others. Pear and apple trees have some degree of tolerance, but plum, gooseberry, black and redcurrant bushes have little and the effects of the damage accumulate. The cost of Bullfinch damage is difficult to estimate, but countrywide it could be in excess of a million pounds.

We have been studying a 2 hectare pear orchard in Kent over a number of years, to analyse the course and extent of Bullfinch damage. During the winter of 1978, Bullfinches began taking pear buds in late December and the damage increased rapidly until by April no tree had escaped. Many of the trees had few, if any buds left and the crop picked the following autumn was small. Estimates indicated that in excess of 860,000 buds had been eaten, representing some 92% of those on the trees in mid-December. The financial loss was large, problably well over £2500. Succeeding years showed less dramatic losses of buds and these were not necessarily associated with a loss in the value of the crop picked.

Detailed studies of the effects of Bullfinch damage showed it did not always reduce the crop; in some instances there was no effect and it could even be associated with a slight increase. Partly this was because a small proportion of the attacked buds produced some flowers; on heavily damaged trees these formed 60% of flower trusses. More important was that flowers (and buds) surviving on heavily damaged trees set more fruitlets than those on undamaged trees. Following flowering, usually in June when fruitlets were still small, there was typically a large natural drop of excess fruitlets. This was less in years when the number of buds, and consequently the number of fruitlets, was depleted. Thus on undamaged trees, many buds did not produce pears and Bullfinch damage increased the fruit-bearing potential of buds that escaped attack. Another factor was that heavily damaged trees produced larger pears, so a greater percentage of their fruit was of marketable size. Finally, the pear trees studied compensated for the loss of buds in one year by producing more the following year. As a result, their tolerance to attack was greatest in the third year, when a loss of 90% of the buds did not reduce their crop.

The activities of Bullfinches are not the only reason for crop reduction. The fruit is attacked later in the growing season by other birds such as tits, thrushes, Blackbirds and Starlings. Also, pears are made unfit for marketing by the activities of wasps and other insects, and by bad weather during the growing season; autumnal gales especially can cause significant losses. These factors result in an immediate and irretrievable loss of crop, in direct contrast to Bullfinch damage that may have little or no effect, even at high levels.

Bullfinches are a serious problem to tree and bush fruit growers. However, our work indicated that they may not have the exclusively bad influence that is often suggested. They are active in orchards at a time when they are easily seen and blamed for crop losses, because there are no leaves on the trees. On the other hand, the damage they cause is only one of a number of factors that reduce the final harvest.

Department of Pure and Applied Biology,
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T. J. Seller and
N. J. Matthews.

First record of the Sooty Shearwater *Puffinus griseus* for Arabia

by P. R. Colston and M. D. Gallagher

Received 7 September 1982

The mostly intact skeletal remains of a medium sized *Puffinus* shearwater were discovered amongst debris on a tideline of a shelving beach near Azaiba, Batinah, Sultanate of Oman, on the Gulf of Oman, at 23°36'N, 58°20'E, on 23 June 1982 by Wg. Cdr. D. Foster. The specimen was passed to MDG who realised that it was unusual and took it to the British Museum (Natural History) (BMNH) where it is now lodged as a skeleton (BM S/1982–115–1) and where we identified it as a Sooty Shearwater *Puffinus griseus*. Although one wing was missing and the head detached, the rest of the corpse was apparently complete, still retaining the feathers of the tail and parts of the body. The dark blackish-brown wing showed the silvery-white under-wing pattern characteristic of *griseus*, and the long slender black bill matched other specimens in the BM. Measurements were: wing 298 mm; tail, strongly rounded with 12 tail feathers, 90 mm; bill (from skull) 52 mm; tarsus 55 mm; length of middle toe 62 mm. The primaries were abraded and the rest of the plumage also showed some degree of wear, so it was therefore probably a full grown adult.

This migratory, cold-water species breeds in the sub-antartic around South America, New Zealand and Tasmania, departing between mid-March and May, mostly migrating rapidly northward across the equatorial Pacific and Atlantic Oceans to winter in the northern temperate zones – Bourne (1956) *Sea Swallow* 9:23–25; Phillips (1963) *Ibis* 105: 340–353; Cramp & Simmons (1977) *Birds of the Western Palearctic* 1:143-5. Sooty Shearwaters occur at sea south of Kerguelen I. in the southern Indian Ocean (Bourne 1956) and though there had been no records from further north, Bourne pointed out that there had been 2 records of the Short-tailed Shearwater *P. tenuirostris* accidentally migrating north in the "wrong" (Indian) ocean and that the Sooty Shearwater seemed equally likely to do the same thing (Bourne (1960) *Sea Swallow* 13:20; (1967) *Ibis* 109:152). A sighting of a total of 15 Sooty Shearwaters was subsequently reported from the east coast of Sri Lanka in November 1974 "when the size, colour, mode of flight and silvery wing linings allowed positive identification" (Sinclair 1977) *J. Bombay Nat. Hist. Soc.* 74: 354). However it is surprising that Sinclair does not appear to have identified the Wedge-tailed and Flesh-Footed Shearwaters *Puffinus pacificus* and *P. carneipes* which normally pass through Sri Lanka waters at that season, and it may be wondered whether there was some mistake.

The present record appears to be the first from Arabia. The specimen's condition and its position on the beach indicates arrival after the winter storms, in spring, at which time the strong, contrary, northeast monsoon winds of winter would have begun to decline, and when other species which breed in the southern hemisphere, such as Pale-footed Shearwater *Puffinus carneipes* and Wilson's Storm Petrel *Oceanites oceanicus,* begin to move northwards towards the cool waters of the upwelling off the Kuria Muria islands of Oman.

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Notes on the birds of southwestern Banks Island, Northwest Territories, Canada

by D. T. Holyoak

Received 30 September 1982

The southwestern area of Banks Island, (c. 72°N, 125°W) arctic Canada, was visited from 30 June to 9 August 1981 with an expedition carrying out geological research. There were frequent opportunities to make ornithological observations. Two of the bird species seen have not previously been recorded from Banks Island, 2 others are little known there and one had not previously been found nesting. This note records these, along with a list of the breeding birds found in the region around Sachs Harbour.

PINTAIL *Anas acuta*

On 1 July a female was flushed from a nest containing 5 eggs, on a tundra slope above a small marsh with a pool, c. 2 km east of Sachs Harbour. The only other record of Pintail was of 2 males and 5 females seen together near the Kellett River on 3 July.

Although there are other summer observations of Pintail on Banks Island this is the first record of breeding; the only other breeding records from the Canadian Arctic Archipelago are from southern Victoria Island (A.O.U. 1957, Godfrey 1966).

WHIMBREL *Numenius phaeopus*

On 27 July one was seen flying east along the shore west of Sachs Harbour. There are a few other breeding season records from Banks Island but no proof of breeding (Manning *et al.* 1956, Godfrey 1966).

BLACK-LEGGED KITTIWAKE *Rissa tridactyla*

On 28 July a flock of about 65 (with c. 40 adults and c. 25 first-year birds) was seen on Cape Kellett. On 3 August a flock of c. 60 (mostly adults) was seen resting on a sand bar in the estuary of the Sachs River at Sachs Harbour. The species has not previously been recorded from Banks Island (the breeding record given in A.O.U. 1957 is apparently erroneous). However, there are breeding colonies in northern Alaska and numerous sightings from the southwestern part of the Beaufort Sea (Gabrielson & Lincoln 1959, Frame 1973, Watson & Divoky 1974, Johnson *et al.* 1975) as well as sightings within 150 miles of the North Pole (Godfrey 1966).

SABINE'S GULL *Larus sabini*

Several sightings of single birds and groups of up to 6 were made around Sachs Harbour, Cape Kellett and Fish Lake. On 3 July a nest with 3 eggs was found in a shallow pool with emergent grasses and sedges c. 12 miles inland on a low terrace south of the Kellett River; 3 adult birds were present and 2 of them mobbed vigorously when we visited the nest. There are few other breeding records of this species from western Banks Island (Manning *et al.* 1956, Godfrey 1966).

BARN SWALLOW *Hirundo rustica*

One seen about Sachs Harbour repeatedly on 1 July; one seen along shore c. 4 miles west of Sachs Harbour on 9 July. These are the first records from Banks Island. The northern edge of the breeding range is well south of the arctic islands, but there are other records of stragglers from Cambridge Bay, Victoria Island (Godfrey 1966) and one of attempting to breed in northern Alaska (Childs & Maher 1960).

OTHER SPECIES

Other species recorded within 20 miles of Sachs Harbour (from the Kellett River south to Cape Currie) have all been reported before as breeding on Banks Island (Manning *et al.* 1956, Godfrey 1966). The full list excluding species noted above is as follows (names follow Voous 1973, 1977; breeding was confirmed for species marked*):—

*Yellow-billed Loon *Gavia adamsii,* *Arctic Loon *G. arctica,* *Red-throated Loon *G. stellata,* *Whistling Swan *Cygnus columbianus,* *Brent Goose *Branta bernicla,* *Snow Goose *Anser caerulescens,* Long-tailed Duck *Clangula hyemalis,* *Eider *Somateria mollissima,* King Eider *S. spectabilis,* *Rough-legged Buzzard *Buteo lagopus,* Gyrfalcon *Falco rusticolus,* Peregrine *F. peregrinus,* *Willow Grouse *Lagopus lagopus,* Rock Ptarmigan *L. mutus,* *Sandhill Crane *Grus canadensis,* *Semipalmated Plover *Charadrius semipalmatus,* *Lesser Golden Plover *Pluvialis dominica,* *Black-bellied Plover *P. squatarola,* Ruddy Turnstone *Arenaria interpres,* *Pectoral Sandpiper *Calidris melanotos,* *White-rumped Sandpiper *C. fuscicollis,* *Baird's Sandpiper *C. bairdii,* Sanderling *C. alba,* Grey Phalarope *Phalaropus fulicarius,* *Pomarine Jaeger *Stercorarius pomarinus,* Parasitic Jaeger *S. parasiticus,* Long-tailed Jaeger *S. longicaudus,* *Glaucous Gull *Larus hyperboreus,* Thayer's Gull *L. thayeri,* *Arctic Tern *Sterna paradisaea,* *Snowy Owl *Nyctea scandiaca,* *Horned Lark *Eremophila alpestris,* *Water Pipit *Anthus spinoletta,* Snow Bunting *Plectrophenax nivalis,* *Lapland Longspur *Calcarius lapponicus.*

Acknowledgements: My visit to Banks Island with an Expedition from the University of Reading was funded by N.E.R.C. and the Royal Society of London; the Polar Continental Shelf Project gave logistic support. Thanks are due to Dr. Peter Worsley for making many of the arrangements for this Expedition and for tolerating much extracurricular ornithology while we were there.

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Mass spring migration of European Rollers *Coracias garrulus* in eastern Tanzania

by C. J. Feare

Received 8 September 1982

It is well-known that vast numbers of European Rollers *Coracias garrulus* winter in the savannah regions of East Africa south of the Sahara (Moreau 1972). Ash & Miskell (1980) recorded a mass migration of this species in southern Somalia in spring 1979, and the obervations reported here indicate that, as expected, such migration is not an isolated event. During a visit to coastal Tanzania in spring 1982 I was able to record the period over which this mass migration—the evacuation of East Africa by Palaearctic migrants—occurred.

On 22 March, large numbers of rollers were seen during a drive from Arusha to Muheza; and large numbers were present, especially in Sisal *Agave sisalana* plantations, on the following 4 days (23–26 March) in the general area between Muheza and Dar-es-Salaam. Sample counts indicated that the migrants outnumbered the indigenous Lilac-breasted Roller *C. caudata* by over 50:1, as recorded by Moreau (1972). There was no evidence of mass migration on those days.

At about 07.00 on 28 March, large numbers of European Rollers were flying northeast over Muheza. They flew high, at over 300 m, until about 10.00 when heavy rain brought them down to less than 100 m. The northeastward movement was then seen to include European Swallows *Hirundo rustica,* Striped Swallows *H. abyssinica,* a few Mosque Swallows *H. senegalensis,* White-rumped Swifts *Apus caffer* and a Peregrine *Falco peregrinus.* The species composing this migration were therefore similar to those described by Ash & Miskell (1980).

Heavy rain showers continued up to 30 March and the movement of European Rollers continued uninterruptedly on 29 and 30 March; but at Tanga, on the coast, the direction of the movement was more northerly. On a journey from Muheza to Maramba on 31 March the number of European Rollers seen in Sisal plantations was much smaller than had been seen earlier and the northeastward movement continued throughout the day.

On 1 and 2 April my observations were on the coast, mainly around Pangani, south of Tanga. The rain had stopped and these days were predominantly sunny with light southeast winds. A continuous stream of European Rollers migrated up the coast on both days, accompanied by European Swallows and small parties of unidentified falcons. Although the northeastward movement of rollers was seen inland, there was obviously a concentration of birds migrating up the coast. I did not attempt to estimate numbers, but on 1 and 2 April certainly tens of thousands coasted past and the numbers may have reached 6 figures.

On 3 April European Rollers were comparatively scarce on the journey from Pangani to Korogwe with *C. garrulus* and *C. caudata* in about equal numbers. In the Korogwe area, about 100 km inland, migration of European Rollers was still observed on 3 and 4 April, but their numbers and concentration were much lower than on the coast. Furthermore, the direction of migration at Korogwe was east of northeastward, suggesting that the birds were heading for the coast, possibly to avoid flying over the Usambara mountains. On subsequent journeys in the Arusha, Dodoma and Manyoni areas very few European Rollers were seen.

These observations suggest that the mass-migration reported by Ash & Miskell (1980) may be regular. In addition, it appears that the evacuation of the wintering area by European Rollers occurs over a relatively short period, possibly a fortnight or less.

Acknowledgements: These observations were made during a visit to Tanzania financed by the Tropical Pesticide Research Institute, Arusha, the British Council, Overseas Development Administration and the Ministry of Agriculture, Fisheries and Food.

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Description of the downy young of Lichtenstein's Sandgrouse *Pterocles lichtensteini* and the significance of "unpatterned" downy young in the Pteroclididae

by David H. Thomas and A. Paul Robin

Received 8 September 1982

There does not appear to be any published description of the downy young of Lichtenstein's Sandgrouse *Pterocles lichtensteini* (Harrison 1975), although it is hard to believe that such young have not been seen before by ornithologists. The following description is offered despite being based on a single individual and because the downy young's appearance in this and some other sandgrouse species is unusual in the Pteroclididae. The possible significance of this will be discussed.

Observations were made in the Moroccan Sahara (where Lichtenstein's

Sandgrouse is at the northwestern limit of its range) during the course of a study of the sandgrouse there (for a full description of the location and general ecological conditions there see Thomas & Robin 1977). At 08.20 on 28 May 1974, a pair of Lichtenstein's Sandgrouse with a single downy chick were found among boulders in stoney ground on the lower slopes of Jebel Bani (c. 30°N, 6°W), in the region of Foum Zguid. They were observed at 5–10 m range from a Landrover for about an hour, during which time the female and chick sheltered in the shade of a rock, while the male stood nearby, gular fluttering, in weak sunshine (air temperature 38°C and relative humidity 18% 1 m above the ground in the shade of the Landrover at 08.55). When later all 3 birds moved off unhurriedly, the chick walked almost under the female or very close to her shaded side, hiding immediately in the shadow of a rock when we followed. The chick was photographed at close range, the following description being made from 2 diapositives (projected) and also from notes made at the time. Colour codes are in Munsell notation (Munsell Color 1975), determined by comparison with the projected diapositive images, which may, of course, have shown some distortion from the true colour of the chick itself. Unfortunately no measurements were made, since we did not appreciate at the time that this plumage was undescribed.

DESCRIPTION OF THE DOWNY YOUNG

Age. Unknown, but the plumage was entirely downy and showed no outward sign of any later feather development. Since it had already left the nest site, the chick was presumably at least one day old, and may have been 2–3 days old. Sandgrouse normally have clutches of 2–3 eggs, which may hatch at one day intervals, and chicks do not normally leave the nest until the last chick is hatched and dried (Maclean 1976).

Colouration. Crown and nape, throat, body, wings, thighs and the feathered anterior aspect of the tarsus all of a markedly uniform warm donkey brown, only slightly paler ventrally (7.5YR 6/4) than dorsally (7.5YR 5/4). Lores, supercilium, ear coverts and below the eye a somewhat darker brown (light chocolate: 7.5YR 3.5/4), demarcated below by a short pale moustachial-stripe and above by a long pale lateral-crown stripe running from the bill to the back of the head, the pale stripes irregular in width and alignment. A pale spot just below and behind the eye was the same creamy buff (7.5YR 8/4) as the other 2 pale strips (see Fig. 1). The texture of the down appeared very uniform, rather like dense velvet. The bare parts (bill, a narrow eye ring, toes and the posterior aspect of the tarsus) were light grey (5YR 6/1).

DISCUSSION

The unusual feature of this downy plumage in comparison with that of many other sandgrouse species is the uniform colouration. Typically, downy young of sandgrouse are marked disruptively with mottled browns, buffs, black and white, more or less organised into symmetrically placed darker panels outlined and separated by paler lines, particularly on the head and dorsal aspect of the body. Specifically, this generalised description can be applied to the following species:

Syrrhaptes paradoxus, S. tibetanus (Fjeldsaa 1976, 1977); *Pterocles namaqua, P. alchata, P. quadricinctus* (Fjeldsaa 1976); *P. orientalis* (Fjeldsaa 1977); *P.*

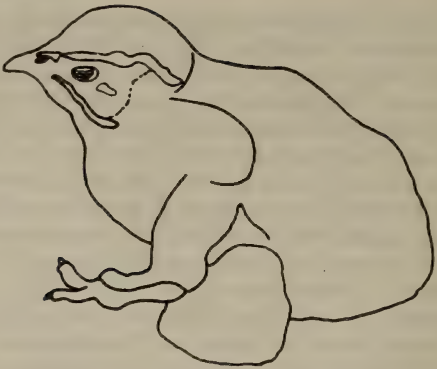

Figure 1. View of the downy young of Lichtenstein's Sandgrouse *Pterocles lichtensteini*, showing the pattern of pale lateral-crown and moustachial stripes, the position of the pale spot below and behind the eye, the posterior margin of the darker facial colouring (dotted line between the pale stripes) and the otherwise unpatterned plumage. (Traced from a photograph; the bird was straddling a pebble, which obscured some plumage details.)

exustus (Aldrich 1943, Harrison 1975); *P. burchelli* (DHT's unpublished photographs of a chick collected by Mr. J. E. W. Dixon, Department of Zoology, University of Capetown, Rondebosch, S. Africa); *P. decoratus*, *P. gutturalis, P. bicinctus* (Mackworth-Praed & Grant 1952).

This list includes all members of the family (see Hüe & Etchécopar 1957) except the Madagascar Sandgrouse *P. personatus* (for whose downy young no description was found), Lichtenstein's Sandgrouse (in which the absence of patterning on the body has been noted already), and *P. coronatus, P. senegallus* and *P. indicus,* of which 3 species Fjeldsaa (1976: 213) comments that the downy young are "faintly marked . . . but the course of the light lines is nearly the same in all". Of these last 3 species, *P. indicus* is probably closely related to *P. lichtensteini* (and is possibly conspecific—Meinertzhagen 1954), and at least one description of the downy young of *P. indicus* (as "uniform earthy brown"—Ali & Ripley 1969:93) seems to conform to the present one of *P. lichtensteini*. Colour photographs of *P. coronatus* downy young (George 1978: plate 32) shows them to be not unlike *P. lichtensteini* chicks in the comparative uniformity of general colouration and with a darker facial patch, while *P. senegallus* is slightly more patterned than *coronatus* or *lichtensteini* (George 1978: plates 29–31, Mackworth-Praed & Grant 1952).

The slight or absent patterning in downy young of *Pterocles indicus, lichtensteini, coronatus* and *senegallus* may represent convergent adaptations to extreme desert conditions rather than any phyletically close relationship. There has not been a recent evaluation of relationships within the sandgrouse family, but Bowen (1927) showed the existence of 2 distinct species groups in *Pterocles* (based on plumage characteristics and drinking behaviour): on these criteria, *lichtensteini* seems close to *indicus, bicinctus* and *quadricinctus*, yet the latter 2 species have strongly patterned downy young. Similarly, *coronatus* and *senegallus* also seem otherwise phyletically close to species with more or less strongly patterned young (*P. alchata, orientalis, namaqua, exustus, gutturalis* and *burchelli*). Elsewhere we have shown that *P. lichtensteini, coronatus* and *senegallus* show marked adaptations for extreme desert conditions (Thomas

& Robin 1977), and *indicus* also is found in arid areas (Ali & Ripley 1969). Thus, it seems that the loss of the "typical" family patterning of downy young and adoption of more uniform colouration has evolved at least twice in sandgrouse, in association with existence in extreme deserts: once in the *P. lichtensteini/indicus* species group and again in the *P. coronatus/senegallus* group. Interestingly, *P. namaqua, bicinctus* and *burchelli* have "typically" patterned downy young, yet survive well in the Namib and/or Kalahari deserts (Maclean 1968, Thomas & Maclean 1981). However, these 3 southern African species experience less extreme climatic conditions, and live to a greater extent in savanna (as well as desert) compared to the 4 Saharan/Arabian/Indian species, *coronatus, senegallus, lichtensteini* and *indicus* (Thomas & Maclean 1981, Thomas *et al.* 1981), and so selection for "unpatterned" downy young may not have been so strong in the southern African species.

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Birds in the Brak and Sabha regions of central Libya, 1981-82

by P. J. Cowan

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In his check-list *The Birds of Libya,* Bundy (1976) collated separately records of birds seen in the Fezzan region of Libya (south of 30°N, west of 19°E) on the basis of the few published papers. I reported bird records for the Brak and Sabha regions (27°N, 14°E) of the Fezzan for September 1980 to June 1981 (Cowan 1982). The present paper reports my continued observations in the Brak and Sabha regions, from 28 August 1981 to 24 June 1982. Acquisition of a car considerably improved my exploration of the area and, for example, allowed discovery of a further pool at Ashkidah which provided the Ashkidah breeding records in this paper. I had first visited the lake at Sabha in late March 1981. Subsequently I was able to visit the lake during autumn and winter also.

Sites mentioned are shown on the map in Cowan (1982) though I have changed the spelling of Maharouga to Al Mahruqah (National Atlas 1978). Al Mahruqah, Aqar, Brak and Ashkidah are settlements in the Wadi ash Shati. South of the Shati, across an arm of the Awbari Sandsea, is the town of Sabha. West of Sabha, in the Awbari Sandsea, is Gabroan village. Wetland areas are present in the vicinity of these settlements and include pools or small lakes. In the following list the sequence of species and checklist number of Bundy (1976) are used.

3. *Podiceps nigricollis* Black-necked Grebe. Noted at Sabha on 2 dates in Sep, one in Oct, one in Nov, 2 in Jan, one in Feb and one in Mar, 2–5 birds, but 10 in Feb. Also at Sabha, 6 grebes, presumably this species, once in Dec. First records of any grebe in the Fezzan.

11. *Phalacrocorax carbo* Cormorant. One at Brak, 19 Oct. First Fezzan record.

12. *Ardea cinerea* Grey Heron. Maximum seen c. 75 at Sabha on 1 Oct, but otherwise, and apparently in past (Bundy 1976), only seen in small numbers.

15. *Botaurus stellaris* Bittern. One Sabha 24 June. Previously recorded Apr and Oct (Bundy 1976).

18. *Egretta garzetta* Little Egret. Maximum seen, 28 at Sabha on 22 Sep. In autumn, only singles mentioned by Bundy (1976) although a similar maximum was recorded in autumn by Cowan (1982).

20. *Nycticorax nycticorax* Night Heron. Maximum, c. 25 at Sabha on 1 Oct. Apparently previously recorded only in small numbers in autumn.

23. *Platalea leucorodia* Spoonbill. Singles at Sabha, 21 and 22 Sep, 1 Oct, 8 Nov and 19 Apr and at Ashkidah 17, 23 and 27 Apr. Two previous Fezzan records.

24. *Plegadis falcinellus* Glossy Ibis. Records include 21 at Sabha on 21 Sep. Previously apparently only singles in autumn.

26. *Anas acuta* Pintail. Seen on 28 dates Sep-June, maximum c. 50 at Sabha, 23 Oct and at Ashkidah, 30 Oct. Maximum for the 5 dates Dec–Jan, c. 20 at Brak, 28 Jan. Bundy (1976) mentioned small numbers Oct–Nov, Feb–Apr.

29. *Anas clypeata* Shoveler. Recorded Sep–Dec on 6 dates, maximum 10

at Ashkidah on 16 Nov and Mar–Apr on 7 dates, maximum c. 15 at Ashkidah 5 Apr. Also one at Sabha, 24 June. Only one previous Fezzan record.

30. *Anas crecca* Teal. Recorded on 5 dates, Dec–Mar. Maximum, c. 25 at Sabha, 21 Jan. Previously recorded Sep–Nov only, apparently singles (Bundy 1976).

33. *Anas querquedula* Garganey. Recorded Sep–Nov on 4 dates and Feb–June on 14 dates. Maximum, 20 at Brak, 19 Sep. Bundy (1976) mentions records on 2 autumn dates, Cowan (1982) on 2 spring dates, involving small numbers.

37. *Aythya ferina* Pochard. One at Sabha, 23 Oct. First Fezzan record.

38. *Aythya fuligula* Tufted Duck. One at Sabha, 8 Nov. First Fezzan record.

39. *Aythya nyroca* Ferruginous Duck. Recorded Sep–June on 22 dates, maximum c. 100 at Sabha, 23 Oct. Jan maximum, 24 at Sabha, 6 Jan. June maximum, 28 (excluding downy young) at Ashkidah, 13 June. Previously only recorded Oct–Nov (Bundy 1976). Breeding records (at Ashkidah): several sightings in June of 2 females each rearing a single brood. When last seen brood size down to 8 and 5 downy young respectively. First Fezzan breeding records.

58. *Circus aeruginosus* Marsh Harrier. Recorded Sep–June on 31 dates, maximum 4 at Sabha, 8 Mar. Includes 2 dates in Dec, 3 in Jan and 2 in Feb. First January records for the Fezzan.

64. *Hieraetus pennatus* Booted Eagle. One Gabroan, 21 May. 3rd Fezzan record.

74. *Falco concolor* Sooty Falcon. One Sabha, 24 June. 4th Fezzan record.

81. *Falco vespertinus* Red-footed Falcon. One Sabha, 10 May. First Fezzan record.

85. *Grus grus* Crane. One at Ashkidah, 5 Dec. First Fezzan record.

87. *Fulica atra* Coot. Recorded Sep–June on 31 dates, maximum c. 140 at Sabha on 18 Feb. Autumn maximum, 72 at Sabha, 8 Nov. Includes 5 dates Dec–Jan, maximum 45 at Sabha, 6 Jan. Apr–June maximum excluding downy young juveniles, c. 60 at Ashkidah 17 Apr, 29 May and 7 June. Bundy (1976) mentioned only singles Oct–Nov, while Cowan (1982) had 2 spring dates involving only a few birds. Breeding records: a small number of broods reared at Ashkidah and apparently also at Sabha. Sightings of broods of downy young at Ashkidah late May to 19 June, maximum c. 4 broods on 29 May. Juveniles present Ashkidah in June, maximum of 6 seen on 7 June. 7 juveniles seen at Sabha 24 June. First Fezzan breeding records.

88. *Gallinula chloropus* Moorhen. Recorded Sep–June. Maximum adults seen 22, Ashkidah 19 June. Breeding records: at Ashkidah, one brood of downy young 29 May and one, apparently a different brood, 5 June. Juveniles at Ashkidah, Brak, Al Mahruqah and Sabha in June, maximum 7 Ashkidah 19 June. Breeding colony previously reported from Sabha (Bundy 1976). Probably a resident breeder at all suitable localities in west central Libya.

96. *Charadrius alexandrinus* Kentish Plover. At Sabha, singles on 15 Dec and 6 Jan. At Ashkidah seen Apr–June on 13 dates, maximum 4 (excluding downy young). Previously, singles on 5 dates in autumn (Bundy 1976). Breeding records (at Ashkidah): sightings involving at least 3 different broods. Observations of downy young Apr and June, including 2 broods of 2 downy young each on 19 June; one juvenile 2 May; nest with 3 eggs 5 June. First breeding records for the Fezzan.

97. *Charadrius dubius* Little Ringed Plover. One on 22 Sep, 2 on 1 Oct and 2 on 21 Jan at Sabha. Also recorded Mar–Apr. First autumn and winter records for the Fezzan. One unseparated *dubius/hiaticula* at Sabha, 6 Jan.

98. *Charadrius hiaticula* Ringed Plover. 3 at Brak on 11 Sep, 3 at Sabha on 1 Oct and one at Ashkidah on 5 Nov and 14 May. First Fezzan records.

102. *Pluvialis squatarola* Grey Plover. One at Ashkidah, 23 Apr. First Fezzan record.

103. *Vanellus vanellus* Lapwing. One at Ashkidah, 5 Dec. Previously recorded by Cowan (1982) only.

105. *Calidris alba* Sanderling. At Ashkidah, one on 2 May and 2 on 24 May. Previously recorded on only 2 dates (Bundy 1976).

106. *Calidris alpina* Dunlin. 2 at Ashkidah, 5 Nov and one at Sabha, 8 Nov. First Fezzan records.

108. *Calidris ferruginea* Curlew Sandpiper. At Ashkidah, 3 on 27 Apr, one on 14 May and 2 on 24 May. 6 at Sabha 10 May and one at Gabroan 21 May. Only one previous Fezzan record.

110. *Calidris minuta* Little Stint. Recorded Sep–June including, at Sabha, c. 15 on 15 Dec, 7 on 6 Jan, c. 20 on 21 Jan and c. 15 on 18 Feb, the first winter records for the Fezzan.

111. *Calidris temminckii* Temminck's Stint. One at Sabha, 22 Sep. First autumn record.

112. *Gallinago gallinago* Snipe. 2 on 22 Sep and one on 1 Oct at Sabha. Also recorded in Mar. An unseparated snipe sp. at Brak, 8 Dec. One previous autumn record.

116. *Limosa limosa* Black-tailed Godwit. Singles at Sabha on 21, 22 Sep and 1 Oct and at Ashkidah on 23, 27 Apr and 5 June. Two previous Fezzan records (Bundy 1976, Cowan 1982).

121. *Philomachus pugnax* Ruff. Recorded Sep–Oct and Mar–June. Also, one at Sabha on 15 Dec, the first Fezzan winter record.

123. *Tringa erythropus* Spotted Redshank. Recorded on 7 dates Sep–Nov, maximum 4 at Sabha on 1 Oct. Previously, records of 5 birds (Bundy 1976).

124. *Tringa glareola* Wood Sandpiper. One at Brak, 27 Sep. The second autumn record for Fezzan. Also recorded Apr and May.

126. *Tringa nebularia* Greenshank. One at Ashkidah on 30 Oct. Also recorded Apr, May. In autumn, previously, singles on one date only, at Sabha (Bundy 1976).

127. *Tringa ochropus* Green Sandpiper. Recorded Aug–Apr including, at Brak, singles on 8, 21, 24 Dec, 4, 14, 19 Jan and, at Sabha, singles on 15 Dec, 21 Jan. Winter records were first reported by Cowan (1982).

128. *Tringa stagnatilis* Marsh Sandpiper. One at Brak, 27 Sep. Also recorded Apr, May. Only one previous autumn record.

129. *Tringa totanus* Redshank. One at Sabha 22 Sep, one at Brak 27 Sep, 9 Oct. Also Mar, May. First autumn records for Fezzan.

130. *Himantopus himantopus* Black-winged Stilt. One at Sabha, 1 Oct. Recorded on 13 dates Mar–June, maximum 14 at Ashkidah 2 May. No previous autumn records. Previous maxima, 2 (Bundy 1976), 17 (Cowan 1982).

134. *Cursorius cursor* Cream-coloured Courser. One at Aqar 22 Feb and 4 at Sabha 8 Mar. Bundy (1976) mentioned the uncertain Fezzan status of this species, previous records having been Oct–Nov and Feb–May.

136. *Glareola pratincola* Collared Pratincole. 3 at Ashkidah, 24 May. In same flock were a further 3 pratincoles whose underwing colour was not determined. First Fezzan records of pratincoles.

143. *Larus fuscus* Lesser Black-backed Gull. One (*L. f. fuscus*) at Ashkidah on 24 and 29 May. No previous Fezzan records.

147. *Larus ridibundus* Black-headed Gull. At Sabha: one on 1, 23 Oct, 8 Nov; c. 50 on 15 Dec; 40, 6 Jan; c. 30, 21 Jan; c. 20, 18 Feb; 6, 8 Mar; one, 19 Apr. At Ashkidah, one on 28 Jan and 5 Apr. One at Brak, 19 Mar. 3 gulls, presumably this species, Ashkidah, 17 Apr. First recorded Cowan (1982), maximum 16.

148. *Chlidonias hybrida* Whiskered Tern. At Sabha, one on 1 Oct, 4 on 10 May. At Ashkidah, one on 24 May, 2 on 29 May. First Fezzan records.

149. *Chlidonias leucopterus* White-winged Black Tern. One at Sabha, 1 Oct. Second autumn record for the Fezzan. Also, at Ashkidah, 5 on 23 Apr, 3 on 27 Apr, 2 on 24 May and one on 13 June. 7 at Sabha, 10 May.

150. *Chlidonias niger* Black Tern. 4 at Ashkidah, 23 Apr. Previously, 5 birds recorded (Bundy 1976).

151. *Gelochelidon nilotica* Gull-billed Tern. One at Sabha, 1 Oct. Second Fezzan record.

164. *Streptopelia senegalensis* Palm Dove. Recorded Oct–June on 19 dates. Seen at Ashkidah, Brak, Sabha and Al Mahruqah. Probably a resident breeder. First recorded by Cowan (1982).

207. *Riparia riparia* Sand Martin. Recorded Sep–Oct on 8 dates. Also seen Mar–June. First recorded in autumn by Cowan (1982).

215. *Motacilla cinerea* Grey Waytail. At Brak, one on 8 Dec and 27 Feb. Previously, singles on 4 dates (Bundy 1976, Cowan 1982).

251. *Sylvia cantillans* Subalpine Warbler. At Brak, one on 29 Aug, 23 Nov and 4 Jan. One at Al Mahruqah 29 Mar. Bundy (1976) gave one and Cowan (1982) 3 winter dates.

282. *Saxicola rubetra* Whinchat. Though recorded Apr–May as expected (Bundy 1976), no autumn records (cf. Cowan 1982).

283. *Saxicola torquata* Stonechat. One at Brak, 29 Nov. 3rd Fezzan record.

307. *Passer hispaniolensis* Spanish Sparrow. At Brak, 28 Oct–23 Mar with a maximum of c. 1000 on 31 Oct. Cowan (1982) recorded it early Nov to Mar though previously not recorded in Fezzan before Jan (Bundy 1976).

I can add the following species to the list in Cowan (1982) of species seen by myself of which the Fezzan status is reasonably certain (Bundy 1976):— 21. *Ciconia ciconia;* 61. *Circus pygargus;* 79. *Falco subbuteo;* 161. *Pterocles senegallus;* 177/179. *Apus apus/pallidus* (unseparated); 192. *Calendrella cinerea;* 203. *Hirundo daurica;* 225. *Ficedula albicollis* (not *semitorquata*); 226. *Ficedula hypoleuca;* 252. *Sylvia communis;* 281. *Phoenicurus phoenicurus.*

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On the nominate race of *Cisticola fulvicapilla* (Vieillot), 1817

by P. A. Clancey

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Sylvia fulvicapilla Vieillot, 1817, is based on the La Fauvette Rousse tête of Levaillant (1802), who encountered the species in the Cape to the south of the Orange R. and specifically near Old Camdeboo, close to the present town of Graaff-Reinet in the east of the Province at 32° 12′S, 24° 32′E, which is the accepted type-locality of the nominate race. In his major review of the genus *Cisticola*, Lynes (1930) gave the range of *C. f. fulvicapilla* as the Cape (except for ecologically unsuitable karoo country and the southwest) and Natal. Interestingly enough, Graaff-Reinet lies in the east of the Karoo and is well outside the currently established range of the species in the eastern Cape, the valley of the Great Fish R. being the western distributional limit in this sector.

In my revision of *C. fulvicapilla* (Clancey 1971), I refined the range of the nominate race to read "southern and eastern Cape, east from about George, Lesotho, Natal and Zululand, and, probably, western Swaziland"—this being adopted in the recent *S.A.O.S. Checklist* (Clancey 1980). In this revision it was pointed out that the population occurring on the periphery of the massif of Lesotho differs from the norm of nominate *fulvicapilla* in its greater size. Quickelberge (1972), in his report on 2 ornithological expeditions to the highlands of Lesotho, comments on the same 4 adult males from Moletsane (a remote outpost in northern Lesotho on the Maluti escarpment between Mamathes and Mapoteng at 6200 ft) which were commented on by Clancey in 1971, as demonstrating a redder, less brownish, pileum and lighter mantle when compared with the bulk of referred populations of nominate *fulvicapilla*. Two adult males taken in early August 1982 near the village of Rhodes (30° 48′S, 27° 28′E), and now in the Durban Museum, show similar characters to those established for Lesotho birds by Quickelberge.

While no specimens from anywhere near the type-locality of *C. f. fulvicapilla* exist in museum collections, material is available from the karoid country to the east of the mid- and upper valley of the Great Fish R., northeast to the versant of the seaward facing escarpment of the Drakensberg Range and Lesotho.

This karoid element of the present nominate race of *C. fulvicapilla* is clearly different from the populations of the southern and eastern Cape to Natal and western Zululand currently associated with them. No name in synonymy is available for such populations. Hartlaub's *Camaroptera natalensis* of 1863 (proposed in Gurney, *Ibis* 1863: 323, pl. viii, Fig. 1), described on an Ayres skin from Pinetown, Natal, is pre-occupied in the genus *Cisticola* by *Drymoica natalensis* A. Smith, 1843: Durban, Natal. No name being available, the innominate populations may be known as

Cisticola fulvicapilla dumicola subsp. nov.

Type: ♂, adult, Inanda, north of Durban, Natal, South Africa. Collected 8 May 1955 by Durban Museum personnel. In the collection of the Durban Museum, D. M. Reg. No. 2677.

Description: Differs from *C. f. fulvicapilla* of the karoid regions of the interior of the eastern Cape to the east of the mid- and upper valley of the Great Fish R., northeast to the Drakensberg escarpment and the Maluti of Lesotho, in having the vertex in moderately worn non-breeding dress (August) Argus Brown (Ridgway 1912) *versus* Dresden Brown, and with the dorsum deep Saccardo's Umber, the red-brown of the head-top diffused as a wash over the mantle and scapulars, and the tail rather redder; in worn breeding dress (from November) with the vertex darker, more chestnut and less ochraceous, and with the back rather blacker. The ventral surface in both plumages is about the same. The size ranges smaller than nominate *fulvicapilla:* wings in ♂♂ 48.5–51.5 (in nominate *fulvicapilla* to 54) mm.

Material examined: 50 specimens.

Range: Moist coastal regions of the southern and southeastern Cape from the George/Knysna region to coastal Transkei, Griqualand East, Natal (except Drakensberg escarpment country of extreme west), and western Zululand.

Measurements of the Type: Wing (flattened) 49.5, culmen from base 13, tail 40 mm.

Remarks: The name chosen is from the Latin *dumicola:* inhabiting thickets or coppices.

With the description of *C. f. dumicola,* the range of nominate *C. fulvicapilla* will stand as outlined in the above "*Description*".

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A new subspecies of the Usambara Weaver *Ploceus nicolli*

by N.–E. Franzmann

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The affinity of the 2 East African weavers *Ploceus olivaceiceps* and *P. nicolli* has been disputed for some time. Both forms were originally described as separate species and were also treated as such by Mackworth-Praed & Grant (1960). It was apparently Moreau (1960: 465) who first suggested that *olivaceiceps* and *nicolli* were conspecific, repeating this in Peters' (1962: 56), but later (1966: 88) changing his mind. Hall & Moreau (1970: 292) considered *nicolli* "at least an incipient species". Britton (1980: 212) also treats *nicolli* as a colour form of *olivaceiceps.*

While working on a large collection of skins collected in Tanzania by Thorkild Andersen between 1947 and 1965, a specimen clearly belonging to this weaver complex, but different from the forms hitherto described, was discovered. For the reasons given below, this finding leads me to believe that *P. olivaceiceps* and *P. nicolli* are best treated as separate species. I propose the new form be considered a subspecies of *P. nicolli*, as follows:

Ploceus nicolli anderseni subsp. nov.

Type. Adult ♂ collected 23 May 1952 by Thorkild Andersen in the Uluguru Mts., Tanzania, elevation 1500–1800 m. Collector's No. 144. Type at the Zoological Museum, Copenhagen, Denmark. No. 10.5. 1982: 1.

Description. The male differs from nominate *nicolli* in having forehead, crown and nape black with a sepia brown cast. There is no trace of yellow, not even on the forehead. The throat is very dark, almost black, as opposed to dark brown. This dark area is also more extensive in *anderseni* than in the nominate form, while the chestnut chest-band is narrower in *anderseni*. The feet are light brown, the bill black and the iris brown.

The female *anderseni* differs from nominate females in having the throat darker brown. The crown of the female *anderseni* is very dark brown, almost black, whereas the crown colour of nominate females varies from dusky brown to very dark brown.

Measurements of type (mm). Wing (chord) 88, tail 48, tarsus 23.3 and culmen from base 17.3.

Range. The Uluguru Mountains (7° 10′S, 37° 40′E), Morogoro District, Morogoro Region, Tanzania above 1400 m. Sight records from the Mwanihana Forest (7° 45′S, 36° 50′E), Uzungwa Mountains, Kilombero District, Morogoro Region can also be assigned to this subspecies.

Specimens examined. Ploceus olivaceiceps (13). Mzimba, Malawi 1 ♂, 1 ♀ British Museum (Natural History) (BMNH); Kapiriuta, Malawi 1 ♀ (BMNH); Michiru Hill, Malawi 1 ♀ (BMNH); Unangu, Mozambique 1 ♂ (BMNH); Furancungo, Mozambique 3 ♂♂, 3 ♀♀ (BMNH); Songea, Tanzania 1 ♂, 1 ♀ (Zoological Museum, Copenhagen) (ZMC).

P. n. nicolli (13). Amani, Tanzania 2 ♂♂, 1 ♀ including type (BMNH); Lushoto, Tanzania 1 ♀ (BMNH); Shume, Manolo & Lushoto, West Usambara, Tanzania 3 ♂♂, 2 ♀♀, 1 ♂ imm, 3 ♀♀ imm (Peabody Museum of Natural History) (PMNH).

P. n. anderseni. (2) Uluguru Mts, Tanzania 1 ♂ type (ZMC), 1 ♀ (PMNH).

Remarks. The only ♀ specimen of *anderseni* was collected in the Uluguru Mountains by G. H. Heinrich at 1600 m. on 10 December 1961 (Ripley & Heinrich 1966). I consider *P. nicolli* and *P. olivaceiceps* to be separate species for the following 2 reasons: first, although *anderseni* is much closer to *olivaceiceps* geographically, it is even less similar to it than is nominate *nicolli*. In the male *olivaceiceps* there is a distinct yellow forehead. To a varying degree this is also seen in nominate *nicolli*, but there is no trace of this character in *anderseni*. *P. n. anderseni* is generally darker around the head and throat than nominate *nicolli*, whereas *olivaceiceps* is much paler; secondly both nominate *nicolli* and *anderseni* are inhabitants of the canopy of high mountain rain forest, whilst *olivaceiceps* is a denizen of *Brachystegia* woodland (Stuart & van der Willigen 1978). I do not doubt the common ancestry of the 2 species, but both have clearly diverged very considerably, both in plumage characteristics and habitat requirements. They are best regarded as forming a superspecies in the sense of Hall & Moreau (1970).

Ploceus nicolli is a rather variable species. In the nominate subspecies, the forehead of the male is always dull yellow, but this may sometimes extend over the crown and nape. This was noted by Ripley & Heinrich (1966), who also pointed out the variability in the female head colour from dusky brown to black. With only 2 specimens of *anderseni* it is not possible to comment on such variability except to note that both Uluguru specimens have plumage characteristics well outside the limits of variation shown by nominate *nicolli*.

Ploceus nicolli has recently been seen in the Mwanihana Forest, on the eastern scarp of the Uzungwa Mountains in eastern Tanzania. This is a new locality for the species. Very good field observations were obtained by S. N. Stuart and Miss T. A. van der Willigen at 1150–1200 m, both of whom noted the very dark heads and absence of yellow forehead. I therefore ascribe these birds provisionally to *anderseni*. In addition to the 2 specimens of *anderseni* collected in the Ulugurus, a field observation of one individual was recently made in Kinole Forest (6° 53′S, 37° 44′E) at 1350 m (Stuart & Jensen 1981) on the eastern side of the mountains.

This subspecies is named after the collector, the late Thorkild Andersen, whose collection of birds from Tanzania is one of the most extensive ever made.

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The Soft-plumaged Petrel, the Gon-gon and the Freira, *Pterodroma mollis, P. feae* and *P. madeira*

by W. R. P. Bourne

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The soft-plumaged petrels allied to *Pterodroma mollis* are a complex group of seabirds of wide distribution but uncertain affinities whose classification has caused repeated difficulty to systematists (Murphy & Mowbray 1951, Bourne 1957, 1966). In the past I have urged a cautious approach pending the acquisition of more information, a course adopted by Jouanin & Mougin (1979); but since the only important recent information indicates that a number of colonies may have been lost and the remainder include some of the rarest seabird populations in the North Atlantic (Bourne 1965, 1972, Bannerman 1965, 1968, Cramp & Simmons 1977), it seems time to reconsider their importance before we lose these as well. They are currently both the subject of debatable propositions about the difference between dark and light individuals of the same species (Clancey *et al.* 1981) and of intrinsic interest in their own right.

DISCOVERY AND DESCRIPTION

The first soft-plumaged petrel appears to have been collected at 6° 50′ N, 23° 46′ W off west Africa in October 1768 during Cook's first voyage. It was named *Procellaria crepidata* by D. C. Solander in his notes and this was the name used in some accounts of the voyage, though unfortunately no description was published at the time. An excellent drawing by Sydney Parkinson has since been reproduced by Lysaght (1959), from which it is recognisable as the form breeding locally in the Cape Verde Islands, where it is known as the Gon-gon, which was eventually named *Oestrelata feae* by Salvadori (1899). This still appears to be the only record of the collection of an example of the North Atlantic populations at sea, and confirms that this form has a primarily tropical distribution.

A number of specimens, including an almost uniformly dark grey bird, were next collected in the Southern Ocean by Gould (1860) on the way to Australia in 1838, and subsequently he obtained others from sailors. Gould (1844) published the first description of the main southern population under the name *Procellaria mollis*. He deduced that while the adults have white breasts, the young are grey (as in gulls), repeating this in his influential books on the birds of Australia. When it was eventually realised that while few petrels show much variation in appearance with age, many are polymorphic, *P. mollis* was therefore assumed to be one of them.

Soon afterwards, in 1853, Frere obtained 2 more birds in Madeira (now at Cambridge—Benson in press). He presumably exhibited them as a new discovery, since shortly afterwards William Yarrell misidentified a stray specimen, without data, of the rather similar nominate race of Fairy Prion *Pachyptila turtur* as a new species from Madeira for Gould (1855) to describe and name *Procellaria brevirostris*. Fortunately this name had already been applied to the Kerguelen Petrel by Lesson (Bourne & Elliott 1965), so that while this mistake has caused a good deal of speculation, it has had no permanent nomenclatural consequences.

The situation was eventually investigated thoroughly by Mathews (1924, 1932, 1934 a). First he appropriately named another stray specimen of doubtful origin, now in the American Museum of Natural History (AMNH) as *Pterodroma dubius,* and what appears to be Gould's original grey "immature" in the British Museum (Natural History) (BMNH) as *P. deceptornis.* He followed this by describing a small population nesting in the mountains of Madeira, where they are known as the Freira, and large birds nesting on the offshore islands, as 2 new races, *P.m. madeira* and *P.m. deserta.* Finally in his definitive check-list (1934b) he synonymised all the southern birds under nominate *P. mollis* but continued to accept 3 races from the North Atlantic, including large *P.m. feae* from the Cape Verde Islands, *P. m. deserta* and *P. m. madeira.* Most subsequent authors have considered *P. m. deserta* inseparable from *P. m. feae* (Bourne 1957, Jouanin *et al.* 1969, Cramp & Simmons 1977).

Up to this time, apparently, it was assumed that the Soft-plumaged Petrels were most closely related to the larger members of the genus *Pterodroma* in the Southern Ocean. Then Murphy & Mowbray (1951) reported the rediscovery of the long-lost Bermuda Petrel *P. cahow* which proved to be intermediate in size and appearance between *P. mollis* and a group of large warm-water species including the Capped Petrel *P. hasitata* of the West Indies and the Dark-rumped and White-necked Petrels *P. phaeopygia* and *P. externa* of the Pacific (Bourne *in* Palmer 1962). I have already suggested that the full elucidation of the situation must depend on further investigation in the field, notably at another possible intermediate station, namely the Azores (Bourne 1966).

OBSERVATIONS IN THE FIELD

The appearance and behaviour of live Soft-plumaged Petrels has been examined critically by Elliott (1954, 1957) in the Tristan/Gough group. He found that while most had white breasts, one distinct group nesting high on the main island were darker with more markings below, though otherwise quite similar, and concluded therefore that they were only a variety. Simultaneously Rand (1954) reported what he took to be a uniformly dark form of *P. mollis* breeding commonly on Marion Island; so that the 2 authors, prior to publication, were consequently unable to to compare their observations. This was unfortunate, since the specimens that Rand sent to the BMNH are in fact young Kerguelen Petrels (Bourne 1957).

In the course of an investigation of the birds of the North Atlantic islands I examined nearly all soft-plumaged petrel specimens in northern museums (Bourne 1957, 1966). They showed little consistent geographical variation except that while North Atlantic birds are usually pale and white below, the southern ones are darker with a breast-band. The birds from the North Atlantic are also divisible into 2 groups of different sizes with different breeding-seasons. Thus the small, form *madeira* lacks much mottling and appears to breed in the early summer in the mountains of that island; and the large form *feae,* which tends to be streaked on the flanks, breeds in the autumn on the offshore islands of Madeira and in winter in the mountains of the Cape Verde Islands. About one in ten of all large series were darker and more heavily marked below and one in many hundreds of the southern population were dark all over.

Further summer-breeding populations of *P. mollis* which appear indistinguishable from the nominate form have also been found in the Southern

Ocean at the Crozets by Despin *et al.* (1972) and on Antipodes Island, south of New Zealand, by Warham & Bell (1979). There is also a specimen of *P. mollis* in the BMNH collected in the 1840s by Ross' Antarctic Expedition and 2 others in the Melbourne Museum collected in February 1952 at Port Jeanne d'Arc from Kerguelen, from where Derenne *et al.* (1974) give other records. Individuals have also recently been reported from Macquarie and Chatham Islands (Jones 1980, Crockett 1981), where it now seems likely that bones formerly attributed on grounds of probability to the osteologically similar Mottled Petrel *Pterodroma inexpectata,* together with other bones from Amsterdam Island (Jouanin & Paulian 1960), really belong to further southern populations of *P. mollis*. While some of these populations may have been exterminated by introduced predators, it might still be worth searching for survivors (Bourne 1965, 1967, 1972, 1981).

Further observations have now confirmed that while heavily-marked individuals can normally be found in variable proportions in most or all populations of Soft-plumaged Petrel, and may apparently predominate in the Prince Edward Islands (Clancey *et al.* 1981), uniformly dark individuals are rare. In addition to the bird obtained in the last century by Gould (1844, see Mathews 1932), about 12 have now been reported at sea (Sinclair 1978) and on Gough Island (Swales 1965) in the Southern Ocean, while on Marion Island one was found consorting in a hole with a white-breasted individual (Schramm 1982). At sea the paler birds showed contrasting darker markings of the type usual in Soft-plumaged Petrels, while the darker birds were darker than Kerguelen Petrels, with which they might have been confused, and which appear silvery at sea. Sinclair (1978) reports also that *P. mollis* can be separated by its characteristic shape and behaviour and the darker leading edge of the underwing.

DISCUSSION

Any attempt to classify the Soft-plumaged Petrels and their allies encounters difficulties resulting from either gaps or overlaps in their distribution, suggesting that either the missing populations are likely to have been lost or overlooked, as in the subantarctic islands of New Zealand or the Azores; or that the overlapping populations must either interbreed or represent separate species (Mayr *et al.* 1953: 121). It may be useful to consider the problem under 3 headings.

The medium-sized gadfly (or Soft-plumaged) petrels of the Southern Ocean

Owing to the fact that the most important early authority, Gould (1844, 1860), apparently collected only one medium-sized grey gadfly petrel in the Southern Ocean, which by chance proved to be the rare dark form of *P. mollis,* there appears to have been persistent confusion over the relationship of this species to the more southerly grey Kerguelen Petrel *P. brevirostris* (Falla 1937, Rand 1954). Until I saw them together I also assumed that they must be closely related and might hybridise (Bourne 1966). In fact they appear to be rather distinct with numerous isolating mechanisms.

Thus, in the first place, while the Soft-plumaged and Kerguelen petrels are rather similar in size and sometimes in appearance, they differ considerably in their structure and behaviour, the Kerguelen Petrel having a much larger eye, presumably an adaption for nocturnal vision in particular (Harper 1973). Secondly, they also have rather distinct annual cycles, the Kerguelen Petrel laying about 2 months earlier in the spring and completing its breeding cycle rapidly during the summer (Mougin 1969); the Soft-plumaged Petrel in contrast continues to feed its chick into the winter. Thirdly, I found that on Gough Island the 2 species use rather different nest-sites, the subtropical Soft-plumaged Petrels breeding in dry, sheltered burrows in the steep sides of the island, while the subantarctic Kerguelen Petrels preferred waterlogged holes in the bleak upland heaths.

Similarly, while I formerly supposed that both species were originally replaced by the rather similar Mottled Petrel P. *inexpectata* in the New Zealand area until the sites were devastated by introduced predators (Bourne 1957), the presence of P. *inexpectata* on the outlying islands has never been proved, while P. *mollis* has in fact been found there instead. It consequently seems more likely that P. *inexpectata* was a specialised form which developed on and around the main islands of New Zealand, dispersing south in the summer and migrating into the northern hemisphere in the winter, whereas the sedentary P. *mollis* continued to occupy the same niche on the outlying islands that it does in the Atlantic and Indian Oceans. (Incidentally I have seen P. *mollis* commonly at sea much further east in the Great Australian Bight than shown on the distribution map in Harper (1973).)

The medium-sized gadfly petrels of the North Atlantic

While the Soft-plumaged Petrels of the Southern Ocean may vary in their appearance, they are all rather similar in their size and habits, nesting on the middle slopes of oceanic islands in the local summer. The situation is rather different in the North Atlantic, where, as already mentioned, in addition to a population of small-sized birds nesting in the summer on the cool, moist, heavily-vegetated upper slopes of Madeira, other groups of larger-sized birds breed in the autumn on its bare, arid outlying islands, and in the winter on the mountains of the Cape Verde Islands to the south and islets around Bermuda to the west.

This situation is susceptible to 2 alternative explanations. All the birds may possibly be derived (together with P. *cahow* of Bermuda) from the large, winter-nesting Capped Petrel P. *hasitata* of the West Indies. This could have given rise when the climate deteriorated during the Pleistocene to a summer-nesting population on the mountains of Madeira, which subsequently colonised the Southern Ocean, where it is now replacing P. *inexpectata* in the New Zealand area following reduction of the latter by introduced predators. Alternatively the eastern North Atlantic populations may be derived from summer-nesting birds of the Southern Ocean, which colonised the North Atlantic during the Pleistocene, and since the climate became warmer have given rise to a winter-nesting population in the Cape Verde Islands, and have now colonised the lower levels of the Madeira group as well.

The relationship between birds of different colours

On the basis of a personal examination of specimens in northern collections, including all the types, it is clear (see above) that while northern populations of the Soft-plumaged Petrels are normally pale with white breasts, and the southern ones darker with a band across the breast, occasional individuals in all populations are darker with more marking below, or even dark all over in the southern populations. The examination of many more specimens including recent series from the Antipodes and Crozet islands confirms this.

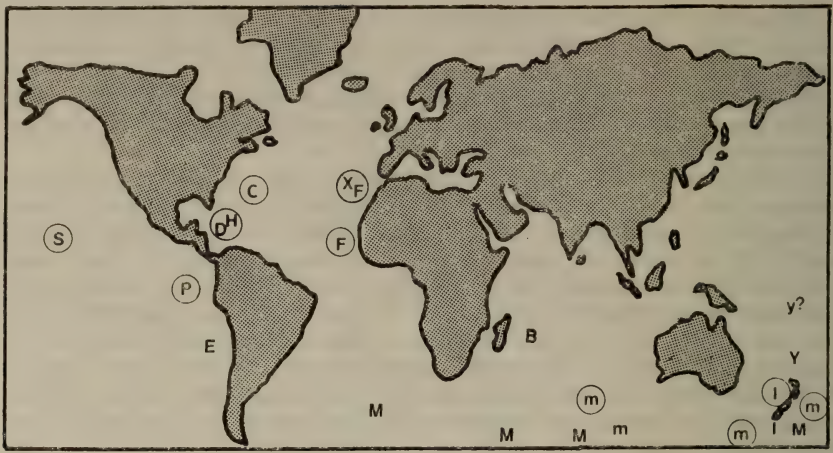

Figure 1. Breeding distribution of Soft-plumaged and Capped Petrels. M– Soft-plumaged Petrel *Pterodroma mollis*. I– Petrel Mottled Petrel *P. inexpectata*. F– Gon-gon *P. feae*. X– Freira *P. madeira*. C– Bermuda Petrel *P. cahow*. H– Capped Petrel *P. hasitata*. D– Jamaica Petrel *P.h. caribbaea*. P– Dark-rumped Petrel *P. phaeopygia*. S– Hawaiian Petrel *P.p. sandwichensis*. E– Juan Fernandez Petrel *P. externa*. Y– White-necked Petrel *P. e. cervicalis*. B– Barau's Petrel *P. baraui*. Populations circled are already known to be severely reduced in numbers, and those with small letters are only known from stray specimens and bones; the Jamaica Petrel (D) may be extinct.

Clancey *et al.* (1981) have recently deduced instead, from South African specimens from a more limited series of sites, that the darker birds belong to a distinct race, *P. m. dubia* Mathews (1924), breeding in the southern Indian Ocean and expected to occur on Antipodes Island in the South Pacific. Regrettably, in fact, the type of *P. m. dubia* is so worn that it is difficult to be sure of its original appearance in the absence of information about its origin. Clancey *et al.* also report the occurrence of two small, pale petrel corpses resembling the North Atlantic race *P. m. madeira* on South African beaches.

In addition to the dark birds collected on Tristan by Elliott (1954), the BMNH also contains 2 small, pale birds, possibly immatures, which Elliott collected on nearby Inaccessible Island in May 1952. There is also a third, in spirit, collected on Marion Island in March 1961. Thus the full range of variation in the southern populations has now been collected in both the Tristan/Gough and Prince Edward groups and, as reported by Warham & Bell (1979), the Antipodes birds show a similar variation in appearance.

It appears that while the soft-plumaged petrels allied to *P. mollis* become darker and more heavily marked from north to south, there is a wide range of variation and overlap in their appearance, so that plumage is not a very satisfactory basis for their classification. The populations in the Southern Ocean, which all appear to nest in the summer, are otherwise rather uniform in such characters as size and behaviour, and seem rather distinct from other southern petrels except possibly *P. inexpectata,* which differs in its voice (Warham 1979) and migratory habits; thus there seems little case for recognising racial variation there. The North Atlantic populations are more variable in size and annual cycle, intergrading through *madeira, feae* and *cahow* with the large, winter-nesting Capped Petrel *P. hasitata* of the West Indies (Fig. 1).

While there is at present an important gap in the North Atlantic range of the group in the inadequately-explored Azores, where the birds may either have been overlooked or exterminated by introduced predators, Madeira appears to have been colonised twice. Presumably it was first occupied by the small, summer-nesting Freira *madeira* when it was cooler and wetter during the Pleistocene; but *madeira* has now become restricted to the upper slopes and the low ground has been colonised by the larger, winter-nesting Gon-gon *feae*, derived from the same stock but under the more arid conditions of the Cape Verde Islands since the climate became warmer in recent times. In consequence the Madeira area, which appears to have the best conditions for subtropical petrels in the North Atlantic, is now exploited by birds of a wider range of sizes breeding during much of the year.

The most important conclusion arising from recent observations, for which I am indebted to C. Jouanin, R. de Naurois, G. Le Grand and D. Wingate, is that all the North Atlantic *Pterodroma* petrels are now rare and threatened, with *cahow* and *madeira* in particular already reduced to a few dozen birds. In this situation there has been a strange contrast between the assistance given to the Cahow, which has been regarded as a species and has received world-wide attention and special assistance (so that it is now recovering), and the Freira, which has been well-nigh ignored as a dubious race. The Gon-gon and the Freira are in fact sympatric forms of great interest which are both in grave danger on Madeira. Because it is difficult to say which of the two is closer to the Soft-plumaged Petrel, showing as the latter does an overlap in its variation in colour, it seems time to abandon taxonomic caution and I advocate treating all 3 binomially as distinct species, *Pterodroma mollis, Pterodroma feae* and *Pterodroma madeira*.

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Sexual size dimorphism in some montane forest passerines from south-central Africa

by R. J. Dowsett

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The number of bird species in montane forests in Africa is notably less than that in lowland forest (Moreau 1966), and it has been suggested that montane species occupy broader niches. One way in which this might be accomplished is for there to be a significant difference in body size between the sexes of a species, enabling the species to exploit a greater range of food items. This paper examines mensural data from some African montane forest birds with this problem in mind.

Forty-three bird species breed regularly in the evergreen forests of the southwestern Nyika Plateau in northern Malawi and adjacent Zambia (Dowsett-Lemaire in press), 24 of them comprising the understorey avifauna of my main study area on the Nyika. All 24 species were caught in mist nets and ringed during population studies, particularly between 1979 and 1982, mostly at an altitude of 2100-2200 m.

Birds were weighed on each capture, and the wing-length of each individual measured at least once each year. Weights were taken to 0.1 g in the passerines considered in this paper, using Pesola balances whose accuracy was checked at intervals. Wing measurements (to 0.5 mm) were taken by the maximum chord method (Svensson 1975). Each bird was examined for moult, and those found to be moulting the longest primary feathers are excluded from the wing-length measurements analysed here.

Determination of sex

Sexual dimorphism in plumage exists in 11 of the 43 species in the Nyika forests, but only 4 of these are passerines resident in the understorey and thus able to be caught in any numbers: Cape Batis *Batis capensis,* Green-headed Sunbird *Nectarinia verticalis,* Eastern Double-collared Sunbird *N. mediocris* and Red-faced Crimson-wing *Cryptospiza reichenovii* (nomenclature follows Benson *et al.* (1971), amended by Dowsett & Dowsett-Lemaire (1980)). Of these 4 dichromatic species, the Cape Batis has a yearling plumage which for both sexes closely resembles the adult female dress. The remaining 20 species of the understorey are for all practical purposes monochromatic, although in the Starred Robin *Pogonocichla stellata* breeding males can be separated from females by the blue-grey of their heads being slightly glossed.

Because of these morphological similarities, therefore, I initially sexed birds of each species only by examination of the cloacal area of sexually active individuals (see Dowsett-Lemaire & Collette 1980). By this method, females could be recognized for at least one month during the breeding season and males for at least 3 months—in the Starred Robin, for example, males had greatly enlarged penile protuberances between mid-September and early January. All these species are strictly seasonal breeders on the Nyika (Dowsett & Dowsett-Lemaire in prep.), and as they were most easily mist-netted at that time, the great majority of individuals could be sexed with certainty. Other characters (e.g. song, presence of a brood patch, etc.) were not used, as they need not be the prerogative of one sex alone.

Wing-lengths of the large number of birds sexed by cloacal examination were then analysed to see if there was a relationship between sex and wing-length. Thirteen species were sexed in numbers large enough for Student's t-test to be used (those species in Table 1 with a sample of at least 10 of each sex). Eleven of these showed highly significant differences ($P < 0.001$), with males notably longer-winged than females: only in the Cape Batis and Red-faced Crimson-wing were there no significant differences. Consequently, it was possible also to sex by wing-length most of those individuals of these 11 species which were caught when sexually inactive, although there remained some whose measurements fell within the area of overlap between the sexes.

TABLE 1

Sexual difference in wing-length (mm) in some montane forest birds in south-central Africa

	Adult male				Adult female				%[2]
	n	range	mean	±S.D.[1]	n	range	mean	±S.D.	overlap
Alcippe abyssinica	4	68–71	70.0	—	4	66–70	67.8	—	37
Andropadus tephrolaemus	38	97–102	99.0	0.97	91	87–95	92.3	2.05	0
Phyllastrephus flavostriatus	11	93–102	96.1	2.18	13	80.5–88	83.4	1.77	0
Alethe fuelleborni	17	106–112	107.9	1.70	11	103–107	104.6	1.12	23
Cossypha anomala	29	76–80.5	78.3	1.30	42	70–77.5	73.8	1.53	22
C. caffra	36	85–93	88.7	1.68	26	78–85	82.4	1.60	10
Pogonocichla stellata	128	79–87	82.6	1.67	108	72–80.5	76.3	1.52	4
Turdus olivaceus	11	117–128	122.4	3.68	14	110–120	114.6	2.79	45
Chloropeta similis	8	56.5–63	60.6	—	6	57–60	59.1	—	57
Apalis thoracica	19	55–61	57.2	1.05	26	50.5–56	53.7	1.31	32
Batis capensis	35	60–66	62.7	1.43	33	59.5–64	61.8	1.12	90
Elminia albonotata	17	66–70.5	68.1	1.18	19	61.5–66	64.2	1.10	6
Laniarius fuelleborni	6	87.5–91	88.9	—	5	81–84	82.9	—	0
Nectarinia verticalis	5	67–70.5	68.3	—	4	59–65.5	63.0	—	0
N. mediocris	48	55–65	58.7	1.56	41	52–55.5	53.8	0.77	20
Zosterops senegalensis	96	57.5–63	60.1	1.19	96	55.5–62	58.7	1.50	92
Cryptospiza reichenovii	23	54.5–59	56.3	1.02	22	54.5–57.5	56.1	0.82	96

1. Standard deviation not computed for samples of less than 10.
2. The right hand column shows the proportion of the total sample which falls in the area of overlap.

TABLE 2

Changes in wing-lengths of individual adult Starred Robins *Pogonocichla stellata* measured in subsequent years

		Mean sample wing-lengths (mm)				Statistical differences[2]	
	n[1]	Year	mean	Year	mean		
Male	43	1	82.55	2	82.79	n.s.	$P > 0.1$
	13	2	82.96	3	82.77	ditto	
	23	1	82.98	3	83.02	ditto	
Female	32	1	76.49	2	76.59	n.s.	$P > 0.1$
	9	2	76.83	3	76.94	ditto	
	19	1	76.32	3	76.50	ditto	

1. Number of individuals for which measurements are available in each of 2 years: year 1 (1979–80), 2 (1980–81), 3 (1981–82).
2. Student's t-test; n.s. = not significant.

Because of the confusing yearling plumage in the Cape Batis, only females sexed by cloacal examination are included in Table 1. This is the case also with the White-chested Alethe *Alethe fuelleborni*, in which yearlings resemble adults but retain the shorter remiges of the juvenile, so that the wing-lengths of some first-year males are likely to fall within the range of adult females. In the Starred Robin, wing-lengths increase by 3–4 mm or 4–5% on moult into adult dress (n = 26), but in that species yearlings have a distinctive plumage quite unlike that of the monochromatic adults.

Even when adult, a bird's wing-length may vary from one annual moult to the next, but usually only to a small extent in passerines, and not sufficiently to influence any overall sexual differences. Table 2 shows that there were no significant changes in the mean wing-length of samples of individual Starred Robins measured at intervals of one and of 2 years. However, Thorne (1975) did show that in large samples of European Reed Warblers *Acrocephalus scirpaceus* there were small but significant increases in wing-length with age (of about 0.5 mm or 0.8% p.a.). Most other studies have shown no apparent increase with age (Flegg & Cox 1977, Stewart 1963).

Wear through abrasion during the year also has only a small effect: the wing-lengths of 3 adult male Starred Robins were reduced by 0.5–1.0 mm (0.6–1.2%) between the end of moult and the start of breeding, i.e. over a period of about 6 months. Most birds in the present study were measured during the breeding season, and so most data are strictly comparable as far as the degree of wear is concerned.

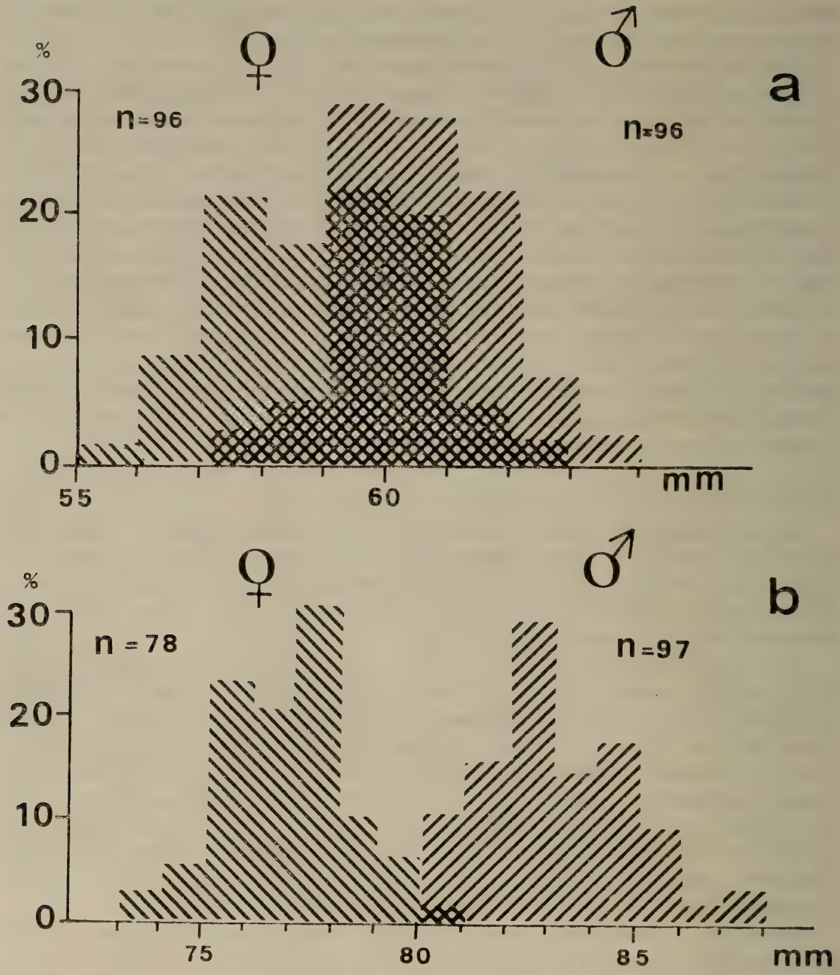
SEXUAL DIMORPHISM IN WING-LENGTH

In the present analyses, I include only a mean measurement for each individual which has been measured more than once, in order to avoid any bias from the frequent recapture of certain long-lived, highly territorial individuals. However, in determining overall ranges, I have taken all recorded measurements into account.

For only 4 of the 17 species in Table 1 does there seem to be a complete dimorphism in size between the sexes. The samples for both Fülleborn's Black Boubou *Laniarius fuelleborni* and the Green-headed Sunbird are too small for this to be confirmed. Although there is no overlap in measurements of known male and female Olive-breasted Mountain Bulbuls *Andropadus tephrolaemus*, a large number of unsexed birds have wing-lengths of 95–97 mm, and so there probably is an overlap in fact. The sexual dimorphism in wing-length in the Yellow-streaked Bulbul *Phyllastrephus flavostriatus* is paralleled by differences in weights reported from several populations—a feature of most species in this genus (Britton 1972).

In those 13 species with some overlap in the ranges of wing-lengths for the sexes, the amount of overlap varies considerably. Two extremes are illustrated in Fig. 1: in the Yellow White-eye *Zosterops senegalensis* there is a very broad overlap, and some 92% of all birds measured had wing-lengths of 57.5–62 mm inclusive. On the other hand, only 4% of all Starred Robins had wings of 80–80.5 mm. Proportions overlapping in other species ranged from 6% to 96% (Table 1). It is of interest that 2 of the species that are strongly dimorphic in plumage (Cape Batis and Red-faced Crimson-wing) have an overlap in wing-length of 90% or more.

No other measurement seems to be as suitable as wing-length for distinguishing the sexes. Although tail-lengths of Starred Robin adults are also significantly longer in males, there is a greater degree of overlap between the sexes. This is also true of wing- and tail-lengths combined, which I have analysed, following the suggestion by Oatley (1982) that there was no overlap between the sexes in this measurement in Natal. Dealing only with individual Starred Robins sexed by cloaca, tails overlapped between 61 and



Histograms showing sexual dimorphism in wing-lengths of 2 montane forest passerines on the Nyika Plateau: (a) Yellow White-eye *Zosterops senegalensis*; (b) Starred Robin *Pogonocichla stellata*. The % is shown of each sample falling within each 1 mm of wing-length.

63.5 mm (comprising 16% of the population), and wings+tails between 141 and 144.5 mm (9%).

SEXUAL DIMORPHISM IN WEIGHTS

The significant differences in wing-length between the sexes in several species are doubtless a reflection of differences in body size. However, it is difficult to establish a direct relationship between an individual bird's wing-length and weight. In part this is because weight varies seasonally much more than does wing-length, but even when comparable data are available, there may still be no apparent relationship (Clark 1979, Snow & Snow 1963).

A sample of 78 adult male Starred Robins measured in October and

November (lacking any apparent furcular fat deposit), when tested statistically gave a low value for the correlation of wing-length with weight (r=0.28). Similarly, there was no significant correlation between these parameters in 39 fat-free adult male Eastern Double-collared Sunbirds, measured when not moulting or breeding (r=0.38). Analyses could not be undertaken for other species of which large samples were measured because of the seasonal presence of visible fat deposits (Dowsett & Dowsett-Lemaire in prep.).

TABLE 3

Sexual differences in weight (g) in some Malawi forest passerines

	Adult male			Adult female		
	n	Range	Mean	n	Range	Mean
Alcippe abyssinica	4	18.3–21.3	20.0	4	18.5–21.0	19.4
Andropadus tephrolaemus	40	32.2–42.0	38.4	90	30.0–41.0	36.8
Phyllastrephus flavostriatus	11	28.1–35.8	31.8	14	22.0–32.4	25.2
Alethe fuelleborni	17	41.6–56.5	49.0	10	44.0–58.0	49.7
Cossypha anomala	28	22.6–27.4	25.0	39	20.6–27.4	24.1
C. caffra	35	26.2–34.0	28.9	23	25.4–32.0	28.0
Pogonocichla stellata	114	16.1–21.5	18.5	93	15.5–26.3	18.7
Turdus olivaceus	11	66.0–77.0	70.8	13	64.5–78.0	70.6
Chloropeta similis	8	10.9–12.7	11.8	5	11.1–14.0	12.6
Apalis thoracica	20	10.9–13.3	12.1	54	10.2–16.0	12.1
Batis capensis	36	11.4–13.6	12.6	34	11.3–15.6	13.1
Elminia albonotata	23	8.4–10.9	9.5	21	7.9–11.6	8.9
Laniarius fuelleborni	6	46.0–53.0	48.9	4	43.0–47.0	45.2
Nectarinia verticalis	5	12.9–15.5	14.2	4	11.8–14.8	13.5
N. mediocris	48	7.2–10.7	8.8	44	6.3– 9.9	7.8
Zosterops senegalensis	96	9.3–12.3	10.7	97	8.9–14.1	11.2
Cryptospiza reichenovii	23	11.5–14.8	13.0	22	11.9–15.6	13.4

Not surprisingly, overall weights (Table 3) of the 17 species in Table 1 show very much more variation and much more overlap between the sexes than do wing-lengths. Even in species showing no overlap in wing-length, such as the Yellow-streaked Bulbul, there may be a large overlap in weights, the heaviest individuals usually being females containing eggs. Although such individuals can be recognised in the hand with experience, those with ovaries at an earlier stage of development usually cannot. Consequently, any analysis of geographical or sexual variation in weights would be biased if samples cannot be strictly comparable, e.g. sexed accurately, not breeding, fat-free and not moulting.

Individual weights of adult forest birds on the Nyika are generally lowest when young are still dependent and also during the cold months (at least in insectivores), and highest just before breeding and afterwards, even during moult (Dowsett & Dowsett-Lemaire in prep.). Seasonal variation may be considerable: for example, female Starred Robins increase weight before saying to some 144% of their minimum weights, and even in males the maxima may often exceed 120% of minimum weights. Diurnal variation in this and species of similar size on the Nyika is in the region of 6.5% of body weight (Dowsett in press).

DISCUSSION

The significant differences in wing-length between the sexes of many of the montane forest birds studied on the Nyika suggest there may be significant differences in body size, despite the difficulty of demonstrating differences in body mass. There may consequently be differences in the size of food eaten, but it is difficult to take this any further. Differences in wing-length may be paralleled by differences in bill-length: for example, bill-lengths of adult male Starred Robins are significantly greater than those of adult females (Student's t-test, $P < 0.001$, samples $n = 31$ and 16 respectively). However, the differences are rather small, amounting to no more than 1 mm (8%) on average (16.7 *vs* 15.7 mm), and whether they have any practical importance is not known.

In the Nyika forests there are important inter-specific differences in body mass between a few species that might be expected to compete ecologically; but most species are segregated ecologically, and there is little evidence of inter-specific competition (Dowsett-Lemaire in press).

Whether the extent of sexual dimorphism shown here differs significantly from that in similar or related species at lower altitudes (for example, in the larger avifaunas of lowland forests) is not known in the absence of comparable studies elsewhere.

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Observations of sea birds nesting on islands of the Sudanese Red Sea

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Between mid-May and the end of June 1976, we visited the Suakin Archipelago, the largest group of islets along the Red Sea coast of Sudan, which extends southwards from the ruined port of Suakin (19° 30′N, 37° 25′E) almost to the Ethiopian border. A month later, at the end of July, we briefly visited some of the islets further north, off the fishing village of Mohammed Qol (20° 53′N, 37° 09′E) (Fig. 1, insert). Our purpose was primarily to record species and numbers of nesting turtles, but we also made observations of the birds inhabiting or breeding on the islands.

There are c. 30 islets in the Suakin Archipelago (Fig. 1), all waterless and uninhabited. Most are less than 1 km long, although 2—Talla Talla Saghir and Talla Talla Kebir—are 5 km long. Some of the larger islets are rocky and reach a height of 10 m or more, having been formed from raised coral reefs, but are largely barren, with low vegetation growing only on the sandy fringes. On the smaller islets, too, fossil reefs are sometimes evident, but they are mostly low (1–3 m) and sandy, with only halophytic bushes growing on them, and fringed by a coral reef.

Five species of terns were observed nesting, or appeared about to nest: the Noddy *Anous stolidus*, the Swift (or Greater Crested) Tern *Sterna bergii*, the Lesser Crested Tern *S. bengalensis*, the White-cheeked Tern *S. repressa*, and the Bridled Tern *S. anaethetus*. Their nesting distribution and approximate numbers are shown in Table 1. No breeding by terns was observed on Karb, Loka, Hindi Seil, and Talla Talla Saghir. The last named is the largest of the Suakin islets, and the absence of terns was possibly due to rodent infestation.

Breeding terns

BROWN or COMMON NODDY *Anous stolidus*

The discovery of the Noddy apparently breeding on Barra Musa Saghir came as a surprise, as there appears to be no other definite record of breeding of this dark, pelagic tern so far north (c. 19°N), at least in the Ethiopian region. White (1957) does record the subspecies *plumbeigularis* breeding on islets in the Red Sea, the Gulf of Aden, and off Kenya, but gives no more detail, nor the source; Sclater's 'Systema' (1930) says only "*Distr.*—Red Sea and Gulf of Aden".

Sharpe (1879) described a specimen from the Red Sea as a new species, *A. plumbeigularis*, being "very much smaller (than *stolidus*); feathers in front of the eye black; wing not exceeding 9.5 inches, cheeks and throat sooty-grey, like the neck". Subsequent writers, including White, relegate the form to doubtful subspecific status. We were unable to examine the individuals on Barra Musa Saghir closely, but obtained a photograph. Nevertheless, it seems inherently unlikely that much genetic isolation could be attained by such a wide-ranging, oceanic species, apparently with somewhat vagrant habits (see, for instance, Archer & Godman's (1937) account of the disappearance of the large breeding colony from Mait Island, Somalia, earlier recorded by von Heuglin).

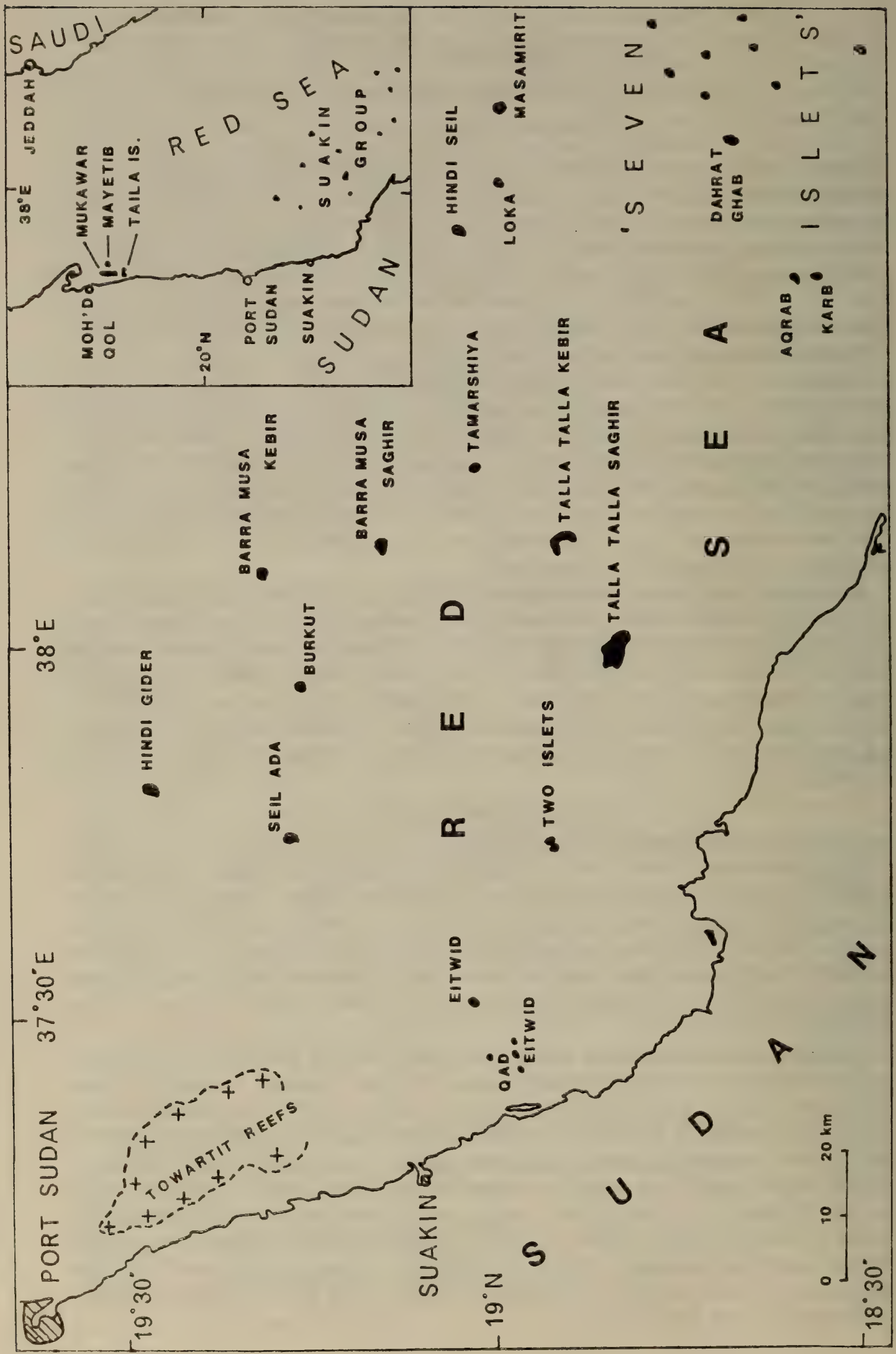
PORT SUDAN
37°30′E
38°E
19°30′
19°N
18°30′
SUAKIN
TOWARTIT REEFS
HINDI GIDER
SEIL ADA
BURKUT
BARRA MUSA KEBIR
BARRA MUSA SAGHIR
EITWID
QAD
EITWID
TWO ISLETS
TAMARSHIYA
TALLA TALLA KEBIR
TALLA TALLA SAGHIR
HINDI SEIL
LOKA
MASAMIRIT
DAHRAT GHAB
AQRAB
KARB
'SEVEN ISLETS'
RED SEA
SUDAN
0 10 20 km
SAUDI
JEDDAH
38°E
MUKAWAR
MAYETIB
TAILA IS.
MOH'D QOL
20°N
PORT SUDAN
SUAKIN
SUAKIN GROUP
RED SEA
SUDAN

Fig. 1. Map of Suakin Archipelago. Insert – map of central Red Sea.

Table 1. Distribution and approximate numbers of pairs of breeding terns off the coast of Sudan, May - July 1976 (see Fig. 1).

	Anous stolidus	*Sterna bergii*	*Sterna bengalensis*	*Sterna repressa*	*Sterna anaethetus*
MOHAMMED QOL AREA					
Mayetib				100	
Mukawar			800	300	
Taila Islets			900	200	800
SUAKIN ARCHIPELAGO					
Hindi Gider			?	20	
Seil Ada			400		300
Barra Musa Kebir			?		
Burkut			?		
Barra Musa Saghir	300				300
Qad Eitwid Islets		10	150*	200	
Eitwid		10	200	100	200
Two Islets		300		100	400
Talla Talla Kebir				50	400
Masamirit			?		?
Aqrab		50			
Seven Islets Group			?		?

Notes. * observed in August 1977.
? indicates birds observed but not obviously congregating prior to nesting.

Mackworth-Praed & Grant (1957) describe *plumbeigularis* as "essentially a bird of rocky islets and cliffs", based on records of its nesting on Mait Island and Socotra, off Somalia in the Gulf of Aden. Our observations, and those of Britton & Brown (1974), indicate a greater variety of nesting habitats, a common characteristic being inaccessibility. In much of its range, *A. stolidus* builds a fairly substantial nest of seaweeds and twigs in trees and shrubs.

The colony, of c. 300 pairs, on Barra Musa Saghir was the only one seen on the whole of the Sudanese coast, and was found in mid-June. The birds were in breeding plumage and were the most aggressive of the 5 species of terns we observed. The nests were not examined as they were rather inaccessibly placed in thick shrubbery, 3 m high, growing in the centre of the island, and we had insufficient time to penetrate it. Active nesting is therefore only presumed, but the very aggressive 'dive-bombing' by the Noddies and their breeding colouration make it almost certain.

SWIFT (OR GREATER CRESTED) TERN *Sterna bergii*

Breeding was concentrated in the south of the Suakin Archipelago, no nests being found in the Mohammed Qol group, and thus Suakin may represent the northern breeding limit in the Red Sea. It is notable that all the islets which supported nesting colonies of *S. bergii* were less than 30 km offshore, on the edge of the continental shelf, rising from water less than 50 m deep. This distribution could be related to specialised feeding habits, but no observations of feeding behaviour were made.

The greatest number were nesting in June on one of the Two Islets, where 2 distinct colonies, each of c. 150 pairs, were found on separate parts of the islet. Breeding did not appear to be synchronised between the 2 colonies, as

c. 50% of the eggs of one colony had already hatched, while none had in the other. On Aqrab, Eitwid and Qad Eitwid only single colonies, of 50, 10 and 10 pairs respectively, were found.

The colonies were densely-packed, on open sandy beaches. The nests, consisting merely of a slight depression in the sand, nearly all contained C/1, none more than C/2. The birds were very timid and were continually harassed by Sooty Gulls *Larus hemprichii*; as soon as they left their nests on being disturbed, a gull would swoop in, pick up an egg in its beak and make off with it. During the theft, the undisturbed terns would present only a very passive defence and did little to drive away the gull apart from calling loudly.

The Swift Tern's eggs thus appear to be rather vulnerable to predation by gulls, despite the bird's large size. It is possibly for this reason that, on several occasions, we found a colony of less than 10 pairs (not recorded in Table 1) nesting in the middle of a colony of one of the other species nesting on open sand, namely the Lesser Crested and White-cheeked Terns. These latter species are much more active in defending their eggs, and Swift Terns nesting in their midst would seem likely to benefit from such behaviour.

LESSER CRESTED TERN *Sterna bengalensis*

Mackworth-Praed & Grant (1957: 431) describe the Red Sea race *S. b. par* as having a "wholly yellow" bill, while Cave & Macdonald (1955: 158) call it orange-yellow. The birds we observed breeding had bright orange beaks.

The Lesser Crested Tern is probably the commonest tern on the Sudanese coast, but as they appear to breed somewhat later than Swift Terns, we found no nests until the end of July, off Mohammed Qol. On Mukawar we found a single colony of c. 800 pairs, and on each of the outer 2 Taila islets were single colonies of c. 450 pairs. However, birds were clearly preparing to nest on Seil Ada and Eitwid in the Suakin Archipelago in the middle of June, and it is likely that they nest there on many other islands as well.

The colonies were dense, with nests separated only by pecking distance. The nests, like those of the Swift Terns, were only slight depressions in the sand, but the choice of site was different, namely a preference for an open sandy area at the highest point of an islet, sometimes at its centre and surrounded by low bushes, sometimes on a slightly raised part of the beach. Although they were also subject to attack from gulls, and occasionally suffered losses of eggs, the Lesser Crested Terns actively drove away gulls which ventured too near the nesting colony.

In August the following year (1977) we visited one of the Qad Eitwid Islets and found a colony of several hundred Lesser Crested Terns with their young. The fledglings were grouped in a crêche of c. 150, attended by c. 20 adults, as found in some other crested terns (Buckley & Buckley 1972). The fledgling plumage was a uniform light grey with darker grey blotches on the wings.

WHITE-CHEEKED TERN *Sterna repressa*

The type specimen of this species was collected by Hartert in Suakin.

We noted considerable variation in the colouration of the beak and legs, ranging from wholly dark red, through black and red, to all black. In the fledglings the colouration is equally variable, but in them it appears to be part of an overall variation in the whole plumage, which displays camouflaging and disruptive patterns, basic colouration ranging from coral sandy-white to sandy-brown or pale bluish-grey, while the markings (which may or may not be present) vary greatly in size, position and colour.

White-cheeked Terns nested in scattered colonies of any number from 5 to 300 pairs, often several to an island. Where colonies exceeded 50 pairs or so, they were often split into smaller, contiguous sub-colonies which nested asynchronously, separated by a week or so. On many occasions colonies of 5–50 pairs were found sited adjacent to a colony of Lesser Crested Terns, possibly to obtain protection from gulls in the same way as Swift Terns. There was great variation in nesting habitat and construction: some nests were on sand-spits and rocky outcrops; sometimes the nest was merely a depression in the sand; sometimes a variety of combinations of seaweed, twigs or coral rubble was used, when the nest might range from a perfunctory circle of material to a built-up structure several inches high. Clutches were most commonly single but up to 3 eggs were found, with very variable, camouflaging colour and markings.

BRIDLED TERN *Sterna anaethetus*

The Bridled Tern was present in loose colonies of several hundred pairs on most islands, both in the Suakin Archipelago and in the Mohammed Qol area, with fewest in the far south where they had not started nesting at the time of our visit in May. Breeding appears to start in early June off the south of Sudan, and nestlings were hatching out at the end of July in the north. They nest on sand protected by the low halophytic scrub which covers the centre of many of the islets. The scrub is patchy, so colonies were sometimes split, but eggs appeared to hatch synchronously within and between sub-colonies. The eggs were usually single (we never saw a larger clutch than 2), and the female sits or stands over it while the male stands guard on top of a shrub and drives away intruders. The plumage of the nestlings seen was a uniform pale sandy-grey with darker grey blotches on the wings.

Discussion

Apart from occasional collection of eggs for food by fishermen, the only predation on eggs or young observed was by 2 gull species, the Sooty Gull *Larus hemprichii* and the White-eyed Gull *L. leucophthalmus*. Each tern species appeared to have distinct defensive methods against attacks by gulls, with varying degrees of success. The Noddy nests in thick shrubbery which may be more inaccessible to ground predators than to aerial ones, but the bird's extreme pugnacity is sufficient to repel predators far more aggressive than gulls. The nest of the Bridled Tern is well protected under low scrub and is guarded carefully by the parents. The Lesser Crested Tern forms large, closely packed colonies, with nesting terns, as mentioned above, separated from each other only by pecking distance. Intruding gulls were actively driven away. The Lesser Crested and Bridled Terns appeared to select nesting sites of uniform type, and the individuals of each species within each colony appeared to nest synchronously, a habit which can reduce predation by shortening the length of time available to predators for attack (Cullen 1960).

Breeding of Swift Terns and White-cheeked Terns in subcolonies on an island was asynchronous, possibly reflecting their greater vulnerability to attacks on their eggs by gulls, since both species nest on sites unprotected by dense vegetation and seem unable to defend their nests well, the White-cheeked Tern owing to its small size and the Swift Tern because of its extraordinarily passive and ineffective behaviour. Both, however, as noted, also nested in association with colonies of Lesser Crested Terns, probably thereby gaining protection and higher breeding success (cf. *S. sandvicensis*—Cullen 1960, Lind 1963). In contrast to the first 3 species discussed here, the locations of whose nests were obvious but well-defended, breeding White-cheeked Terns were inconspicuous. It is the smallest of the 5 species, its plumage is relatively drab, its nests are more widely scattered over an island and the camouflage of the eggs is preserved by defaecation away from the nest. Though the threat of predation extends over a longer period due to asynchronous nesting, the risks are reduced by spread over a number of small sub-colonies. As described earlier, there is a wide variation of nestling colouration, so that some young inevitably would be well camouflaged against the local background.

Apart from sometimes nesting in association with other tern species, the Swift Tern's poor defence against gulls resulted in significant losses of eggs. This is possibly an edge-of-range effect on the species, since it breeds in the Arabian Gulf, and probably in the more southerly islands of the Red Sea, in very large dense colonies, like the Lesser Crested Tern. In doing so, selection for camouflage may have become relaxed, so that eggs and young are more uniform in colouration, and the need to defaecate away from the nest is removed (Cullen 1960). Both Swift Terns and Lesser Crested Terns left rings of guano round their nests, which must have made the Swift Tern's small colonies in the Suakin group more vulnerable to gull predation.

OTHER BREEDING BIRDS

SOOTY GULL *Larus hemprichii*

Almost invariably present in small numbers on every island. We found it nesting in isolated pairs on low-lying islets, although up to 100 birds were seen and presumed to be nesting on the cliffs of Mukawar in July.

WHITE-EYED GULL *Larus leucophthalmus*

Seen in similar numbers to *L. hemprichii* on Mukawar. Although Mackworth-Praed & Grant (1957) report it as breeding in large numbers in the Gulf of Aden, we did not see it south of Eitwid Islet in the Suakin Archipelago.

BROWN BOOBY *Sula leucogaster*

Brown Boobies, singly or in pairs, usually accompanied us when we arrived at, or left, an island, but we did not see any nesting. There were several hundred on Dahrat Ghab (on which we were unfortunately unable to land) in the Seven Islets at the beginning of June, and it is very likely that this was a nesting colony. Mackworth-Praed & Grant (1957) report this species as breeding "as far north as the Farasan Islands" (c. 17°N, 42°E, off the Saudi Arabian Red Sea coast) in October and November and in "Suakin, Sudan, possibly June and July"—presumably the Suakin Islands.

CRAB PLOVER *Dromas ardeola*

Seen commonly in groups of 2–6 on the coast of the mainland and on islands less than 30 km off-shore. On Two Islets in mid-June we found several long burrows c. 20 cm in diameter, which footmarks indicated were the nests of birds with partially webbed feet. We could not wait long enough on the island for the birds to appear, but they were almost certainly the nest burrows of the Crab Plover, which are "generally some five feet long" (Mackworth-Praed & Grant 1957).

OSPREY *Pandion haliaetus*

Present on nearly every islet, the larger islets being inhabited by several pairs. Breeding occurs January to April, but their nests—often impressive structures of twigs or other materials, built high on top of a mound or pile of stones—were conspicuous.

SOOTY FALCON *Falco concolor*

Present on many of the off-shore islets, apparently in breeding pairs, although we did not locate any nests. They noisily and aggressively drove away gulls, a larger raptor, and the authors, from their territory. Breeding occurs July and August.

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Scaly-throated Honeyguide *Indicator variegatus* parasitizing Olive Woodpeckers *Dendropicos griseocephalus* in Malawi

by Francoise Dowsett-Lemaire

Received 9 August 1982

In the south-central African region, the Scaly-throated Honeyguide *Indicator variegatus* is a highly localized species, found either in tall *Brachystegia* woodland, or in patches of evergreen forest at low and high altitude (see e.g. Benson *et al.* 1971). While resident for 2½ years on the Nyika Plateau (Malawi-Zambia), I occasionally encountered this species in montane forest patches up to 2300 m. There was no known honeyguide call-site on the Plateau, and certainly none for several kms around my main study area—at 2100–2200 m. Breeding was not therefore suspected until I found the species parasitizing the Olive Woodpecker *Dendropicos griseocephalus,* the only woodpecker common on the Plateau. Details of the study area and of the habitat are given elsewhere, e.g. Dowsett-Lemaire (in press).

OBSERVATIONS

Of 12 Olive Woodpeckers' nests found in the 1981 season, 3 were parasitized. They belonged to neighbouring pairs (see Fig. 1 in Dowsett-Lemaire (in press), where the 3 pairs concerned are O, P and R).

Nest O

This nest was 12 m up in a dead branch of *Hagenia abyssinica* in an 8-ha forest patch. On 16 September the woodpeckers were carrying food into the cavity to a chick which called with a low, husky voice. Sixteen days later (2 October), a full-grown Scaly-throated Honeyguide was looking out of the entrance. On seeing either parent approaching with food, it would utter a loud "chess-chess-chess-chess . . ." (4–5 calls per second, audible at least 40 m away in the forest). The plumage was more markedly speckled than an adult's—dark grey cap speckled with white spots, yellow-grey breast with black spots—and the bird had a distinctive pale yellow eye-ring. It was obviously ready to fledge, and there was no sign of the family on my next visit (4 October), though a strong wind that day made location of birds difficult.

Nest R

This pair of woodpeckers occupied a 2.3-ha forest patch 900 m north of O. Their nest (8 m up in a dead trunk of *Myrica salicifolia*) was found when the foster parents were already feeding, on 17 September. The chick was at a younger stage than O's, however, since it was brooded for 26 out of 60 minutes that day (in warm weather, mid-morning) and it was never heard calling. From observations at nest P (see below), this probably means that it was under 8 days of age when first found; it fledged on 14 October, presumably between 27 and 35 days of age.

On 4 October, the chick was fed 45 times in 8 hours and called briefly when fed, but was usually silent between feeds, except for spells of husky chatter during peaks of feeding activity, between 1000 and 1130, and after 1530. On 12 and 13 October it was looking out of the entrance hole. It once uttered a 4-note slow trill ("foy-foy-foy-foy") of a pitch similar to that of the quavering contact call of the Olive Woodpecker (Dowsett-Lemaire in press) and it was, indeed, answered by the approaching male woodpecker.

On the afternoon of the day it fledged it was located in a thicket some 25 m away from the nest and was rather immobile, unlike young woodpeckers which hop closely behind their parents. It received its last feed at 1728, some 30 minutes before dark. At 1730 both woodpeckers flew to a liana 4 m from the nest and called, as if to attract the young honeyguide to roost there with them (as they do with their own young); but it did not respond and they flew off, after hesitating several minutes near the nest. Eight days later one adult woodpecker was around and called at roost-time, but no honeyguide.

Nest P

The main forest patch containing this nest measured 1.3 ha, with a few smaller clumps around. It was situated between O and R, closest to O (300 m). The nest, excavated about 16 m up in a dead branch of *Polyscias fulva,* was found on 17 August when the woodpeckers were still working on it. On 6 occasions between then and 1 September I spent 3–6 hours watching the nest, usually starting at 0900 or 1000. During that period, on 2 consecutive mornings (26 and 27 August), an adult Scaly-throated Honeyguide was twice seen entering the nest, each time when the woodpeckers were away. It spent only 5 and 8 seconds inside the cavity, in addition to stopping briefly at the entrance on the way in and out. It was not seen between 28 and 31 August, nor on 1 September when incubation started—presumably with the start of egg-laying, since the woodpeckers had been busy working on the nest until then. During 9 hours on that day and again on 13 September there was no sign of the honeyguide. On 15 September at 0900 the nest was unattended. At 0910 both woodpeckers went in, then the female left. She relieved the male at 0916, but only to leave 2 minutes later. At 0926, the honeyguide entered and remained in the nest for 17 seconds; after that it stopped at 2 other unfinished woodpecker holes nearby, clinging to them briefly before flying out of sight. The male woodpecker was back in the nest at 1013.

There was no sign of the honeyguide in a 2-hour visit on 16 September nor on 18 September, when the woodpeckers showed fidgety behaviour, in marked contrast with that at the beginning of incubation. At 0857 on 18 September, 2 minutes after the male woodpecker had left the nest, the honeyguide appeared again. In contrast with previous visits, it behaved as if it wanted to attract attention, hopping around the nest trunk, then clinging to a liana hanging in front of the nest hole, fanning its tail and uttering all the time a loud chatter, reminiscent of the guiding call of the Greater Honeyguide *Indicator indicator*. It then entered the nest for 18 seconds, and came out quietly, bill closed, and disappeared. It was never seen again. Two minutes later the male woodpecker went back into the nest briefly, and for the following hour kept coming and going every few minutes in an agitated way.

The woodpeckers were obviously disturbed and nervous in the period 15–18 September, after which they resumed incubation with zeal and change-overs were quiet. I checked them every other day, usually for 2 hours per visit, until the hatching of a chick in the morning of 6 October—I was fortunate enough to see the male carry a piece of egg-shell and clean it from its bill 4 m from the nest. This gives an incubation period from the honeyguide's last visit of 18 days. Feeding started immediately after, visible beakfuls of food being carried in by the parents.

Judging by lack of calls at first, in contrast with recently-hatched woodpeckers' behaviour, it became apparent that the woodpeckers were feeding a honeyguide chick and this was confirmed after a week when a honeyguide-like husky voice was heard. The woodpeckers' eggs apparently never hatched, though brooded for a period twice as long as the normal 16 ± 1 days (Dowsett-Lemaire in press). Two weeks later, the nest seemed abandoned and the woodpeckers had deserted the patch altogether. Predation seems rather unlikely, as all 13 nests I found containing young woodpeckers succeeded. In 1980 pair P had successfully raised a young woodpecker; I had not found signs of successful breeding in O and R, but did not visit these patches frequently enough to be certain of the outcome of breeding.

A possible fourth case of parasitism

In 1980, of the 4 woodpecker nests found, 3 produced young woodpeckers. In the fourth, the parents were feeding and brooding a silent chick when I discovered the nest (mid-October) and deserted it less than a week later. The silence of the nestling, even when fed, points to it probably having been a honeyguide. In 1981, the same nest was re-used and egg-laying occurred in July, at least 2 months earlier than in 1980. Two young woodpeckers were raised successfully. None of the 9 woodpecker pairs known to have laid in July (some from observations of backdated juveniles) was parasitized. Honeyguides are perhaps not able to lay as early as July, and this is also suggested by the netting of an adult in full moult at that time.

DISCUSSION

The Olive Woodpecker has only once before been mentioned as a host to the Scaly-throated Honeyguide (Sclater & Moreau 1932). Their record, however, is not entirely satisfactory, since Moreau's native collector reported having seen a young Olive Woodpecker next to the young honeyguide. Possibly the "young" woodpecker was confused with one of the adults (the male and juvenile both having a red crown). Alternatively, this represents the only known record of a host's chick surviving after parasitism of the nest by any species of honeyguide (Friedmann 1955, 1968).

Acceptable host records for Scaly-throated Honeyguide (based on the discovery of large nestlings or fledglings fed by the host) are of the Nubian Woodpecker *Campethera nubica,* Golden-tailed Woodpecker *C. abingoni*, Cardinal Woodpecker *Dendropicos fuscescens* and Grey Woodpecker *D. goertae.* Neuby-Varty (*in* Friedmann 1955) also reported an adult Scaly-throated Honeyguide entering a nest of the Black-collared Barbet *Lybius torquatus* and laying an egg—proved by examining the nest before and after the bird's visit.

Records based on eggs alone must be rejected, as the only known egg of the Scaly-throated Honeyguide is reported to be inseparable from those of the Lesser Honeyguide *Indicator minor* (Friedmann 1955). Finally, a record of a nestling Scaly-throated Honeyguide in a nest of the Golden-rumped Tinkerbird *Pogoniulius bilineatus* (van Someren 1956) must be rejected on the basis of the impossibility for a bird as large as *I. variegatus* to enter the tinkerbird's nest, the hole and channel of which is only about 2 cm in diameter. Olive Woodpeckers' holes are just above 4 cm in diameter and the honeyguide I saw filled the entrance hole completely.

The honeyguide nestling period at nest R was a minimum of 4 weeks, but probably nearer 5, given the periods of 37–38 days known for the Lesser Honeyguide (Skead 1951, Ranger 1955). The incubation period at nest P was apparently 18 days; for the Lesser Honeyguide, Ranger (1955) gave a maximum of 12 days and Skead (1951) a maximum of 17 days, but more data are needed.

Young chicks of Greater and Lesser Honeyguides are known to have mandibular hooks (Friedmann 1955) with which the Lesser Honeyguide was proved to kill its hosts' chick (Ranger 1955). Female Greater Honeyguides are also known, not infrequently, to destroy the embryo of the host's eggs by cracking the shell. The behaviour of the Scaly-throated Honeyguide in respect to the host's eggs is unknown, but from observations at nest P, it seems likely that the female honeyguide damaged the host's eggs in some way, otherwise they should have hatched at about the time she last visited, and the woodpecker young would have been at least 18 days old when the honeyguide's egg hatched on 6 October.

Backdating from the fledging dates at nests O and R, the laying of the honeyguide egg took place in August at each nest (with some days' interval between them) and in September at nest P. The 3 nests were in the neighbourhood of each other, so it is not impossible that they were parasitized by the same individual.

Regrettably, I failed to tape record the low husky voice of young Scaly-throated Honeyguides, but it was certainly very different from the high-pitched twitter or begging "kee-kee-kee . . ." of young Olive Woodpeckers. Vocal mimesis between young Greater Honeyguides and the foster species's begging calls has been occasionally mentioned (Jubb 1966, Fry 1974) but would be best proved with sound spectrograms.

Interactions such as reported by Short & Horne (1979, 1982), mostly between barbets and Greater and Lesser Honeyguides, have never been observed between woodpeckers and honeyguides. On the Nyika I played the tape of the Olive Woodpecker's calls on many occasions without ever attracting a Scaly-throated Honeyguide and the pair of woodpeckers at nest P was never seen to interfere with the honeyguide whenever it visited the nest, although once at least the honeyguide made its presence very noticeable through displays and loud chatter.

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IN BRIEF

Nest of Bates' Nightjar *Caprimulgus batesi* in Zaire

by C. Carter and J. F. R. Colebrook-Robjent.

Received 28 August 1982

During his long residence in Zaire, Chapin only once recorded a nest of the forest species Bates' Nightjar *Caprimulgus batesi* (*The Birds of the Belgian Congo,* Pt.2:421, Bull. A.M.N.H. (75) 1939). He secured a female and its egg from a forest footpath at Lukolela, middle Congo River (1°07'S, 17°11'E) on 6 October 1930. It is therefore of interest to record another nest, which was found by C. C. on 8 July 1978, 56 km north of Beni (00°52'N, 29°40'E) in the Haut-Zaire province of northeast Zaire.

The nightjar was disturbed from an egg laid on ground covered with very sparse vegetation, at the edge of thick secondary forest surrounding a gravel pit. It was flushed twice and well seen, the second occasion alighting on a nearby branch. As pointed out by Chapin (p.422, quoting Bates), *C. batesi* often lays its single egg at the edge of a garden or plantation. Bates gives the measurements and descriptions of 5 West African eggs as 31.5–34.5 x 24–25 mm. It is a large and distinctive egg and can hardly be confused with any other species. Our specimen contained a large embryo and must therefore have been laid in June. It was in beautiful condition, being somewhat glossy white, heavily and distinctly blotched and smeared with sepia over cloudings of ashy-grey. Thus it is quite unlike the majority of African savannah nightjars, which lay erythristic type eggs. It measured 33.6 x 24.2 mm and thus lies within the range of the 5 eggs taken at Bitye, Cameroun, by Bates.

Acknowledgements: We thank Dr. J. F. Monk for his comments on an earlier draft of this note.

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FORTHCOMING MEETINGS

Tuesday, 29 November 1983 — 750th MEETING OF THE CLUB. In the Senior Common Room, South Side, Imperial College, Prince's Gardens, S.W.7 at 6.30 p.m. for 7 p.m. the **Survival Anglia film "Almost a Dodo"** on the Shoebill *Balaeniceps rex* will be shown and **Mr Johnathan Kingdon,** who came to know this bird particularly well during his ecological studies in the Sudan, will say a few words on the Shoebill. Those wishing to attend should send their acceptance with a cheque for £6.40 a person to reach the Hon. Secretary at 2 Chestnut Lane, Sevenoaks, Kent TN13 3AR (telephone Sevenoaks (0732) 450313) not later than first post on Thursday, 24 November.

Tuesday, 10 January 1984 at **6.15 p.m. for 6.45 p.m.,** at the same venue, **Mr M. K. Swales** will speak on the notable **Denstone College Expedition to Inaccessible Island** (Tristan da Cunha group) in 1982-1983 with an introduction by Sir Hugh Elliott, sometime Administrator of Tristan da Cunha, who has himself visited Inaccessible Island 4 times. Those wishing to attend should send their acceptance with a cheque for £6.40 a person to reach the Hon. Secretary (address above) not later than first post on Thursday, 5 January.

Tuesday, 6 March 1984 Mr P. F. Belman will speak on the **Greenland White-fronted Goose.**

Many copies of the *Bulletin* must get thrown away annually by Members, copies which the Club would welcome. Please send all unwanted copies, and ask your Executors to do the same, to the Hon. Treasurer at 53 Osterley Road, Isleworth, Middlesex TW7 4PW at any time. Postage will be refunded if requested.

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Bulletin of the
BRITISH ORNITHOLOGISTS' CLUB

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The seven hundred and forty-eighth Meeting of the Club was held in the Senior Common Room, Sherfield Building, Imperial College, London, S.W.7, on Tuesday, 5 July 1983 at 7 p.m. The attendance was 17 Members and 8 guests.

Members present were: B. GRAY (*Chairman*), Major N. A. G. H. BEAL, Mrs DIANA BRADLEY, P. A. BROWN, D. R. CALDER, R. D. CHANCELLOR, N. J. CROCKER, J. H. ELGOOD, A. GIBBS, D. GRIFFIN, Revd. G. K. McCULLOCH, Dr J. F. MONK, J. G. PARKER, R. E. F. PEAL, S. A. H. STATHAM, N. H. F. STONE and Dr D. H. THOMAS. *Guests* present were: D. BRADLEY, Miss D. J. BULLEY, P. ESPIN, P. GORIUP, T. A. M. JACK, Mrs I. McCULLOCH, M. MORTON and J. A. RANDALL.

Mr Paul Goriup spoke in general on "Bustards", describing briefly the species in this family, many of them little studied, and the threats to their survival. He spoke especially of the Houbara *Chlamydotis undulata,* and of the attempts, mostly unsuccessful, to breed it in captivity because of its heavy mortality from falconry.

The seven hundred and forty-seventh Meeting of the Club was held in the Senior Common Room, South Side, Imperial College, London, S.W.7, on Tuesday, 17 May 1983 at 7 p.m. The attendance was 29 Members and 12 guests.

Members present were: B. GRAY (*Chairman*), Capt. Sir THOMAS BARLOW, P. J. BELMAN, K. F. BETTON, Dr G. BEVEN, Mrs DIANA BRADLEY, P. A. BROWN, D. R. CALDER, P. J. CONDER, Dr G. W. H. DAVISON, J. H. ELGOOD, Sir HUGH ELLIOTT, D. J. FISHER, A. GIBBS, D. GRIFFIN, P. HOGG, J. KING, Revd. G. K. McCULLOCH, Dr J. F. MONK, P. J. OLIVER, R. E. F. PEAL, R. PRITCHETT, P. S. REDMAN, Prof. G. H. N. SETON-WATSON, Dr D. W. SNOW, S. A. H. STATHAM, N. H. F. STONE, C. E. WHEELER and Lieut.-Col. T. C. WHITE. *Guests* present were: J. BARRATT, Mrs G. BEVEN, O. J. H. DAVIES, P. ESPIN, Mrs I. McCULLOCH, Mrs P. J. OLIVER, K. A. ROBERTS, Mrs P. L. E. ROBERTS, Miss LUCY SETON-WATSON, Mrs BARBARA SNOW and Mrs C. E. WHEELER.

Dr D. W. Snow gave an erudite address on "Hummingbirds in the Colombian Andes". He described the altitudinal sequence of temperature levels in the mountains, which about 20 species of hummingbirds inhabited in any of 3 mountain ranges up to c. 9000 ft, but fewer above the tree line. Evolution of the hummingbirds had been very recent and he described some of their many ecological adaptations, including those of species which fed on flowers without nectar.

Five bird species new for Thailand

by Philip D. Round

Received 13 September 1982

This paper describes sightings of 5 bird species hitherto unrecorded for Thailand and made in Chiangmai Province during 1980–82. The names of the observers concerned follow the sighting details, except in cases where the author made the sighting alone.

BURMESE YUHINA *Yuhina humilis*

A single individual was seen in the canopy of hill evergreen forest at c. 1100 m, near the summit of Doi Mon Chong (17° 31′N, 98° 36′E) on 10 and 11 March 1982. In shape, it appeared identical to the Whiskered Yuhina *Yuhina flavicollis*, showing a distinctive high, pointed crest. It had the same dark moustachial stripe but lacked the bright ferruginous collar and differed in showing white, not fulvous brown, under tail coverts and grey, not brownish, streaks on the flanks. In particular it showed an ashy-grey partial collar, visible on the sides of the neck, a feature that is not mentioned in the literature, but which was present on skins of *Y.h. humilis* and *Y.h. clarki* examined at the British Museum (Nat. Hist.).

The Burmese Yuhina is known only from the southern Shan States and northern Tenasserim in Burma (Smythies 1953). Listed by King *et al.* (1975) as a full species, it is usually treated as a subspecies of *Y. flavicollis* (e.g. Peters 1964). It may occur in Thailand as a winter visitor, but most tropical *Timaliidae* are sedentary and it is more likely that the Burmese Yuhina is a hitherto overlooked resident breeder on Doi Mon Chong. The extreme southwest of Chiangmai Province is comparatively remote and has received little attention from ornithologists.

THRUSHES Turdidae

Most thrushes *Turdus* spp. which winter in Thailand appear to show irregular and irruptive patterns of occurrence. Though the Eye-browed Thrush *T. obscurus* is a very common visitor to the hill forests of N. Thailand, its numbers vary from year to year. When plentiful, flocks of *T. obscurus* may be joined by small numbers of scarcer species such as Grey-winged Blackbirds *T. boulboul* and Grey-sided Thrushes *T. feae*. In January–February 1980 and 1982 there were significant irruptions of thrushes, amongst which 3 *Turdus* spp. new for Thailand were found.

CHESTNUT THRUSH *Turdus rubrocanus*

Up to 15 were present in hill evergreen forest on Doi Inthanon (18° 35′N, 98° 29′E) from at least 18 January 1980 (H. Flotow, R. de la Moussaye) and a maximum of 35 was noted on 1 March (D. S. Melville). In 1982, up to 3 birds were present near the summit of Doi Inthanon (2590 m) between 1 January and 3 February, while a solitary individual was seen near the summit of Doi Pui (18° 50′N, 98° 53′E; 1685 m) on 14 January (A. Moon *et al.* and author). All showed the dark grey head of the race *T.r. gouldii,* which breeds in the mountains of western China and which winters in S.E. Tibet and northern Burma (Ali & Ripley 1973, Cheng 1976).

RED-THROATED THRUSH *Turdus ruficollis ruficollis* and BLACK-THROATED THRUSH *T. r. atrogularis*

Four *T. r. ruficollis,* an adult ♂, adult ♀ and 2 immatures were present on the summit of Doi Inthanon on 9 January 1982. Three immature birds were still present in this area on 3 February 1982 (P. A. Coe, G. Walbridge and author). Solitary males of *T. r. atrogularis* were seen on Doi Pui at c. 1500 m on 2 and 5 February 1982 (D. Johnston and G. Walbridge).

Both races of *T. ruficollis* breed in northern Asia, wintering from the western Himalayas to western China (Ali & Ripley, Cheng). Although *T. r. ruficollis* is the commoner form found wintering in Burma, it appears to be restricted to the northeast. *T. r. atrogularis* is more widely distributed and has been found closer to Thailand, in the southern Shan states (Smythies).

DUSKY THRUSH *Turdus naumanni eunomus*

Three were seen on Doi Inthanon on 18 February 1980 (C. Byers, M. Chapman). In January 1982, a remarkable influx occurred, with at least 17 birds on the summit of Doi Inthanon on 1 January (A. Moon *et al.*) and over 100 from 9 January to at least 3 February. Eye-browed Thrushes were locally outnumbered, at least around the summit, no more than about 20 feeding in berry bushes and on the forest floor alongside the Dusky Thrushes, with one or two Long-tailed Ground Thrushes *Zoothera dixoni* and the small numbers of Red-throated and Chestnut Thrushes mentioned above. Groups of 1–5 Dusky Thrushes were encountered lower down the mountain at several sites during this period. In addition, 1–2 birds were seen on Doi Pui, Doi Pha Hom Pok (20° 05′N, 99° 10′E) and near Doi Mon Chong and also in a lowland marshy area near Ban Tha Thon (20° 03′N, 99° 20′E) between 14 January and 9 March (P. A. Coe, G. Walbridge and author). The Dusky Thrush breeds in northeast Asia and winters in northern India, southwest China, northeast and southern Burma (Ali & Ripley, Cheng, Smythies).

ROSY PIPIT *Anthus roseatus*

Two were located on an area of newly-flooded rice paddies near Ban Tha Thon on 29 December, and up to 15 were present in an adjacent marshy area with open muddy pools, 2–27 February (P. A. Coe, G. Walbridge and author). Four individuals, including one in breeding dress, were collected on 26 February and the specimens deposited in the collection of Dr. Boonsong Lekagul, Bangkok. Three of them, still in winter plumage, showed moult of body feathers and tertials, and 2 were growing central tail feathers. Up to 5 were also present in fields of wet rice stubble at Fang, 20 km to the south, 14 December 1981 to 2 January 1982 (G. J. Speight, J. M. Turton and author).

In winter plumage, the Rosy Pipit has more coarsely streaked upperparts and underparts than the Red-throated Pipit *Anthus cervinus*, and also lacks the streaked rump of *A. cervinus*. In addition *A. roseatus* has a markedly greyish-olive cast to the upperparts, recalling the Olive-backed Pipit *Anthus hodgsoni*. However, the Rosy Pipit may be readily distinguished from both these species, which are common winter visitors to Thailand, by its flight call, which appears indistinguishable from that of the Meadow Pipit *Anthus pratensis*.

The Rosy Pipit is a common breeding visitor to the Himalayas and the mountains of western China. It winters in the Himalayan foothills, southern China and is also known in the plains of W, N.E., Central and E. Burma (Ali & Ripley, Cheng, Smythies). In Thailand, it has probably hitherto been overlooked and may be a frequent, though local, winter visitor to the plains of the extreme north. We found none in paddyfields closer to the city of Chiangmai, about 130 km further south, during December to February.

Acknowledgements) The author is grateful to all those observers who submitted details of their sightings; to Mr. I. C. J. Galbraith for permission to examine skins in the British Museum (Natural History) and to Dr. Boonsong Lekagul for providing support and working facilities.

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An overlooked subspecies of the African Palm Swift *Cypsiurus parvus*

by P. A. Clancey

Received 27 September 1982

In the most recent revision of the races of the African Palm Swift *Cypsiurus parvus,* Brooke (1972) recognised 5 forms from the mainland of the Afrotropics, the eastern littoral populations ranging from southern Somalia to Natal being grouped in a single subspecies, namely, *Cypsiurus parvus laemostigma* (Reichenow), 1905: southern Somalia. Brooke describes *laemostigma* as having the most heavily streaked throat of the any of the continental races. Before Brooke, Sclater (1924), following Grant (1915), treated *C. p. laemostigma* as a synonym of *C. p. myochrous* (Reichenow), 1886: Karema, Tanzania. By the normal course of events a race of a highly polytypic species described in the first instance from Somalia is unlikely to occur in Natal and Zululand.

A recent examination of the material of the African Palm Swift in the Durban Museum—from Inhaminga, Sofala district, southern Mozambique, from Humani Ranch, Sabi R., Zimbabwe, as well as from still further south both on the littoral from Manhiça, north of Maputo, southern Mozambique and also from the Natal coast (Durban district)—indicates that birds agreeing with *laemostigma* as defined by Brooke range no further south than the Save R. Those present in the far south of Mozambique and now occurring in Natal (coast and lower midlands) and Zululand are distinctly warmer and buffier brown throughout and have the throat finely streaked with brown, the streaking restricted to the upper fore-throat. This far southern population differs from all the described south-central and southern African forms, *viz. C. p. hyphaenes* Brooke, *C. p. myochrous* and *C. p. laemostigma,* and deserves to be recognised. It may be known as

Cypsiurus parvus celer subsp.nov.

Type: ♂, adult. Manhiça, north of Maputo, southern Mozambique, at 25° 24′S, 32° 48′E, 15 September 1955. Breeding in exotic palms. Collected by Durban Museum personnel. D.M. Reg. No. 13 631.

Description: Differs from *C. p. myochrous* and *C. p. laemostigma* in having the mantle, rump and upper tail-coverts browner (Hair Brown (Ridgway 1912)) less cold greyish, with little or no visible whitish scaling. Below, the fore-throat streaking restricted to the anterior surface, the streaks browner and the light interstices buffier. Rest of ventral surface warm brownish as opposed to grey (about Drab *versus* Mouse Gray), with little evidence of whitish scaling. Size as in *myochrous* and in the southern population of Brooke's *laemostigma.*

Measurements: Wings (flattened) of 8 ♂♀, 130–141 (135.9), σ3.82; tails of 7, 93–109 (98.9), σ5.21 mm.

Brooke gives the wings of East African *laemostigma* as ♂♂ 122–135 (127.1), ♀♀ 119–130 (125.0) mm.

Material examined: 10 (*Natal:* Durban and near Durban; *southern Mozambique:* Manhiça, north of Maputo).

Range: Coastal and lower midland Natal (Pietermaritzburg, Greytown), Zululand, eastern Swaziland, eastern Transvaal and Mozambique south of the Limpopo R. The form is probably endemic to southern Mozambique, having spread in recent times to Natal with the introduction of exotic palms and the erection of suitable structures on which it nests.

Measurements of the type: Wing 141, tail to tip of longer of 2 tail filaments 109 mm.

Remarks: The name selected for the new subspecies is from the Latin *celer,* swift, speedy, darting.

The races of the Palm Swift, *C. p. hyphaenes, C. p. myochrous* and *C. p. laemostigma,* are all greyer than *celer,* less warm brownish, with the throat streaking variable on a whiter ground. *C. p. hyphaenes,* described from Kumgha, on the Botletle R. in northern Botswana, is the palest of the assemblage with the white interstices of the throat streaking carried further down to the upper breast. *C. p. laemostigma* is a trifle darker above than *hyphaenes* but better marked over the venter, the dark throat streaks more intense and the breast and belly darker. *C. p. myochrous* is somewhat intermediate. The distinctions west (from northern South West Africa and southern Angola) to east (south of the Zambesi R. delta) are not always particularly clearly marked, and the range situation obtaining along the mid-Zambesi is particularly confusing (see map in Brooke 1972, and comments on races in this sector by Irwin 1980).

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Notes on the Palm Crow *Corvus palmarum* in Haiti

by D. T. Holyoak

Received 30 September 1982

The Palm Crow *Corvus palmarum* is confined to Cuba and Hispaniola. A few notes on its status, diet, flight, voice and nesting are summarised by Goodwin (1976) from the publications of Wetmore & Swales (1931), Barbour (1943) and Bond (1971). However, the species remains poorly known and it is apparently now uncommon, so notes made on a brief visit to Haiti in September 1981 are reported here.

Palm Crows were seen only at elevations of 1300–1900 m in the Massif de la Selle (south of Port-au-Prince). Three crows together were seen near Furcy, several pairs and groups of 3 along c. 15 km of footpath between Furcy and the summit of the pass above Seguin (road then in hopeless disrepair due to land-slips), and a compact flock of at least 20 just south of the summit of the pass. All the crows were seen in or flying between pine trees, which grew in small groves and lines, often near houses. However, the country was mostly only sparsely wooded with extensive terraced gardens mainly devoted to maize) on steep slopes. Palm Crows were tame, allowing approach to within 20 m.

The call was a rather sharp and high-pitched cawing *craa-craa-craa-,* repeated with series of up to 6 of the *craa-* notes. In tone the call was more similar to that of the Fish Crow *Corvus ossifragus* or American Crow *C. brachyrhynchos* than to calls of the Carrion Crow *C. corone* (*contra* Bond 1971), but not closely similar to any of these. They called loudly and often, the group of c. 20 producing a babble of loud cawing from the tree tops.

A peculiar 'tail-flicking' movement was seen repeatedly. This is apparently not mentioned in the literature, despite its being quite different to displays that I have seen or found described for other *Corvus* species. The tail was slowly raised to slightly above horizontal and then sharply flicked down to a position where it pointed downwards about 45° below the horizontal. The wing tips were held slightly lowered throughout. The 'tail-flicks' were seen to be given at short intervals during a long bout of cawing (but not in time with the calls) as well as by birds that did not call. They appear to function as flight-intention or self-assertive movements.

One crow was seen to head-scratch indirectly (by raising the foot over a lowered wing) in the usual manner for Corvidae.

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A record of Whitehead's Swiftlet *Collocalia whiteheadi* from Bougainville Island

by S. Dillon Ripley

Received 4 October 1982

Among a collection of birds made by Bruce Beehler and Don Hadden from the Crown Prince Range, Bougainville Island is a specimen of *Collocalia whiteheadi* which has not been recorded previously from this island.

The specimen was collected 15 km SSW of Arawa, North Solomons Province (Bougainville Island), Papua New Guinea (6° 20′S, 155° 20′E) at c. 1200 m on 17 June 1979, and was prepared as a study skin. The bird was sexed as a male, testis 2 x 1 mm. It was taken in a mist-net set in the forest; in this same series of nets Beehler and Hadden took *Collocalia spodiopygia* and *C. vanikorensis. C. esculenta* was also common at the locality. *C. whiteheadi* is easily distinguished from these other species by its larger size.

A number of populations of large, dull-coloured swiftlets occur in the New Guinea region. A recent analysis by Somadikarta (1967) showed that one population, collected from several localities on the northern watershed of western New Guinea, differs from all others in having but 3 toes. Three populations of large, 4-toed swiftlets have been named in Melanesia: *nuditarsus,* from the southern watershed of central and southeastern New

Guinea (Salomonsen 1962); *leletensis,* from the Lelet Plateau, New Ireland (Salomonsen 1962); and *orientalis,* from Guadalcanal, Solomon Islands (Mayr 1935).

The single 4-toed specimen from Bougainville obtained by Beehler and Hadden differs in minor ways from its 2 neighbour populations (each represented in collections by holotypes only). The Bougainville bird's wing length (130 mm) is intermediate between *leletensis* (134 mm) and *orientalis* (127 mm). The Bougainville specimen shows a dorsal colouration that is browner than either neighbouring population; in addition, the Bougainville bird's rump is only obscurely paler than the rest of its upperparts, whereas the rump colour is pale, creating a noticeable rump patch, in both *orientalis* and *leletensis.* Finally, the Bougainville specimen is generally darker below than either *orientalis* or *leletensis.* While these differences, listed as they are above, seem significant, comparison is based on a single specimen from each island population. Thus, to erect a new subspecies for the unique Bougainville specimen would be unwarranted.

The 3 named populations of large 4-toed swiftlets in the New Guinea region have been variously referred to the following species taxa: *lowi, maxima, nuditarsus, orientalis,* and *whiteheadi.* Interpopulational variation is ill-defined, and available specimens for study are very few. The New Ireland, Bougainville, and Guadalcanal populations are each known from unique specimens. Clearly more material is needed, including additional information on the habits of the birds, before a final decision can be made as to which population should be assigned to which species. My examination of the types of *orientalis, nuditarsus,* and *papuensis,* as well as the Bougainville specimen, would seem to indicate that the Melanesian populations should be classified into 2 species populations: that of the 3-toed *papuensis,* and that of the 4-toed *whiteheadi* (*orientalis, nuditarsus, leletensis,* and the Bougainville population).

C. whiteheadi was described from material taken in the Philippines. Comparison of this material with specimens from Melanesia shows very little consistent difference between populations. Because of minor physical differences, and because of the absence of populations from several intermediate islands between New Guinea and the Philippines, Somadikarta (1967) favoured considering the Melanesian populations as specifically distinct from *whiteheadi.* Given the paucity of comparitive material, I believe this specific separation is not justified.

These taxonomic judgements create a distributional picture that is unusual, but not unique to Melanesian birds. The 3-toed *papuensis* is the large swiftlet of the northern watershed of New Guinea. The 4-toed populations occur in the islands to the north (New Ireland, Bougainville, and Guadalcanal) and on the southern watershed of New Guinea—separated by the intervening population of *papuensis.* This distribution is not unlike that of the Paradise Kingfisher *Tanysiptera sylvia,* which occurs in northern Queensland and several scattered locales on the southern watershed of New Guinea, then again in the Bismarck Archipelago, but is absent from the main section of New Guinea's northern watershed.

Acknowledgements. I am indebted to Lester L. Short, American Museum of Natural History, for allowing me to examine specimens in his care. The Wildlife Division, Papua New Guinea, allowed Beehler and Hadden to collect birds on Bougainville Island, and we are grateful for their permission. Specimens from that field-trip are housed at the Smithsonian Institution and Papua New Guinea National Museum.

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The distribution of the races of *Arremon aurantiirostris* (Emberizinae) in Panama

by Storrs L. Olson

Received 27 October 1982

Although 3 subspecies of the Orange-billed Sparrow *Arremon aurantiirostris* are recognized in Panama, the characters and distribution of 2 of these have been inaccurately represented in the literature. The dark race *A. a. rufidorsalis* Cassin, 1865 (type locality, Turrialba, Costa Rica), of the Caribbean slope of Middle America extends into northwestern Panama in Bocas del Toro and requires no further comment. The nominate subspecies *A. a. aurantiirostris* Lafresnaye, 1847 (type locality "Panama"), is usually stated to range from the Pacific slope of Costa Rica east in Panama to the former Canal Zone (e.g. Hellmayr 1938, Paynter 1970). A third subspecies, *A. a. strictocollaris* Todd, 1922 (type locality, "Sautata" = Saotata, lower Río Atrato, Chocó, Colombia), has been considered to range from extreme eastern Panama into the adjacent parts of Chocó, in northwestern Colombia (Hellmayr 1938, Paynter 1970). These ranges imply a gap in the distribution of the species that does not in fact exist. Furthermore, although Todd (1922) characterized *A. a. strictocollaris* as having a more yellowish green dorsum, a narrower black pectoral band, and lighter underparts than *A. a. aurantiirostris,* none of these characters actually holds.

Chapman (1925) and Hellmayr (1938) incorrectly regarded *A. a. strictocollaris* as being intermediate between *A. a. aurantiirostris* and the South American subspecies, such as *A. a. occidentalis* and *A. a. erythrorhynchus,* which have a narrower black pectoral band. In the series of specimens from northwestern Colombia and from most of Panama that I have examined, the pectoral band was quite variable in width and it may also be considerably affected by the manner of preparation of the skin. The pectoral band in the holotype of *A. a. strictocollaris,* which I examined at the Carnegie Museum of Natural History, falls within the range of variation of *A. a. aurantiirostris* and thus does not approach the South American subspecies in this respect. In addition (*contra* Todd 1922), the dorsum of *A. a. strictocollaris* is *not* more yellowish green than in *A. a. aurantiirostris*—in fact, the opposite is true—nor are the purported differences in colour of the underparts of the 2 subspecies apparent to me.

Thus, although weakly differentiated from *A. a. aurantiirostris, A. a. strictocollaris* may nevertheless be distinguished by (1) the decidedly orange-yellow rather than yellow coloration of the bend of the wing and (2) the slightly darker, more olivaceous dorsum. The broad-banded forms *A. a.*

strictocollaris and *A. a. aurantiirostris* differ from one another in almost exactly the same manner as the narrow-banded forms *A. a. occidentalis* and *A. a. erythrorhynchus* differ from each other.

Individuals with orange-yellow bends of the wing occur not only in the range traditionally ascribed to *A. a. strictocollaris* but also west to the area of the Canal Zone, where both *strictocollaris* and *aurantiirostris* occur. Thus it becomes of importance to determine the identity of the specimens upon which Lafresnaye (1847) based the name *Arremon aurantiirostris,* as these would presumably have come from the central part of Panama where either subspecies might be represented.

Although Stone (1899) once regarded a specimen in the collections of the Academy of Natural Sciences of Philadelphia (ANSP 7789) to be *the* type of Lafresnaye's name, Bangs (1930) showed that a specimen in the Museum of Comparative Zoology (MCZ 76675) had an equal claim and that both would have to be considered co-types. I was able to compare the Philadelphia specimen with the series in the National Museum of Natural History, Smithsonian Institution (USNM), and found that, although it is somewhat faded, it definitely has an orange-yellow bend of the wing. I then sent a series of fresh specimens of both the subspecies in question to R. A. Paynter, Jr., who compared them with the co-type of *aurantiirostris* in the MCZ. He reported that "the dorsum is hopeless, as the bird is ancient, but the bend of the wing is definitely *yellow,* not orangish" (Paynter *in litt.* 24 August 1982). Accepting this, I designate MCZ 76675 as the lectotype of *Arremon aurantiirostris* Lafresnaye, 1847, in order to preserve the current nomenclature, as the Philadelphia co-type would have to be referred to the population that now bears the name *strictocollaris.*

The characters and distribution of the two subspecies of Orange-billed Sparrow that occupy most of Panama may be summarized as follows:—

Arremon aurantiirostris aurantiirostris Lafresnaye, 1847. Dorsum yellowish green, bend of wing yellow. Pacific slope of Costa Rica and Panama east to the Canal Zone, where found on both slopes, and extending as far west along the Caribbean side as the Atlantic drainage of Coclé (El Uracillo). Mixes with *A. a. strictocollaris* in the Canal Zone area and along the Caribbean coast probably as far east as western San Blas (2 of 3 specimens from Mandinga appear to be more similar to the nominate form).

Arremon aurantiirostris strictocollaris Todd, 1922. Similar to *A. a. aurantiirostris* but dorsum darker, more olivaceous, bend of wing more deeply coloured, orange-yellow rather than yellow. Vicinity of Canal Zone, eastern Panama Province and eastern Colón, eastward along both slopes to northwestern Colombia in Chocó.

Specimens (USNM) from Panama and Colombia examined.

A. a. rufidorsalis: PANAMA. BOCAS DEL TORO: Changuinola River (2); Almirante (2).

A. a. aurantiirostris: PANAMA. CHIRIQUI: Divalá (3); San Felix (1); El Volcan, Palo Santo (1); Las Lajas (1); Puerto Armuelles (1). VERAGUAS: Soná (5); Santa Fé (1); "Veragua" (1). LOS SANTOS: Cerro Hoya (1). COCLE: El Copé (1); El Uracillo (2). CANAL ZONE: Río Indio (2); Lion Hill (3); Chiva Chiva (1); Gatun (1); Summit (1); Curundu (1). PANAMA PROVINCE: Peluca Hydrographic Station (1). COLON: Chilar (1). SAN BLAS: Mandinga (2).

A. a. strictocollaris: PANAMA. CANAL ZONE: Lion Hill (2); Tabernilla (2); Gatun (2). PANAMA PROVINCE: Utivé (1); Cerro Chucantí (3); Cerro Azul (1). COLON: Porto Bello (2). SAN BLAS: Mandinga (1); Armila (1). DARIEN: Río Jaqué (8); Tacarcuna Village (9); La Laguna (1); Cerro Pirre (1); Cana (2). COLOMBIA. CHOCO: Acandí (5).

Acknowledgements. I am grateful to Frank B. Gill for transporting the Philadelphia co-type of *Arremon aurantiirostris* to Washington for my examination, to Raymond A. Paynter, Jr. for his remarks on the Harvard co-type and to Kenneth C. Parkes for access to the collections in the Carnegie Museum of Natural History and for comments on the manuscript. This is contribution Number 13 of the Wetmore Papers, a project supported in part by trust funds from the Smithsonian Institution for completing unfinished work and study of undescribed material left by the late Alexander Wetmore.

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Notes on the extinct *Argusianus bipunctatus* (Wood)

by G. W. H. Davison

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All published sources, including Peters (1934), Delacour (1951) and Warren (1966), cite incorrectly the type description of *Argusianus bipunctatus* (Wood).

The description accepted as the first by these writers was a letter written by T. W. Wood on 22 June 1871 (the author's manuscript date) and published presumably later than June (Wood 1871a). This letter gives an engraving of the type specimen, a description, and the proposed name *Argus bipunctatus* attached both to the illustration (which is on an earlier page) and to the description. However, this letter states that "a letter of mine appeared in the 'Field' newspaper of April 8th. ult . . .".

Reference to *The Field* for that date shows that Wood (1871b) had published the same engraving, with a nearly identical text, and proposed the name *bipunctatus*, approximately 3 months earlier than his June letter. Correct citation of the type description should therefore be:

Argus bipunctatus Wood, The Field, 8 April 1871, p. 281.

Subsequent mention of this species in publications has included no more details than were given by Wood himself. The type and only known specimen is a portion of a male's primary from the right wing, broken off both distally and proximally. The length of surviving rachis is 250 mm, with both webs intact for 160 mm. Wood (1871a, b) noted that the rachis was extremely slender, and Delacour (1951) suggested that the feather was probably therefore long. The distal 170 mm of surviving rachis are less than 1 mm broad, and consequently highly flexible.

In the extant species *A. argus* the primaries have a very broad robust shaft with not more than the distal 70 mm narrower than 1 mm. The short flexible tip is pressed hard against the ground when the male displays his primaries and secondaries in a circular fan (Davison 1982). In this fan, the outer web of one primary overlaps part of the inner web of the next primary descendant. Thorn-shaped short friction barbules (Lucas & Stettenheim 1972) distinguish the area of overlap and maintain the integrity of the fan during display. On each primary the area of inner web exposed during display is densely spotted with chestnut and black, while the concealed area is sparsely spotted or unmarked. Only at the tips of the primaries, where they diverge and eliminate overlap, are the inner webs spotted throughout.

In the feather of *A. bipunctatus* the tip is missing, but the distribution of short friction barbules indicates that the end of the feather is being approached. Extrapolation from its shape suggests that the portion of shaft narrower than 1 mm may have exceeded 250 mm, on a feather of total length 600 mm from tip to skin insertion. Hence, assuming that in display this flexible tip was pressed against the ground, a much longer portion of each primary would have had its entire span exposed, without overlap by the adjacent feathers. This is confirmed by the feather's pattern, which shows chestnut and black spots densely packed over the full expanse of both webs.

In the living *A. argus,* flight by males is laboured, propulsive power coming from the robust-shafted primaries and the (mainly) aerofoil characteristics provided by the long floppy secondaries. Contrary to Wood, the surviving feather fragment of *A. bipunctatus* indicates a primary at least as broad as, and much longer than, those of *A. argus*. The great length of slender shaft, greater even than in the already limp secondaries of *A. argus,* implies a feather with poor aerodynamic properties. Poor flight characteristics are also suggested by the relative width of the outer web, which is 40% the width of the inner web in *A. argus,* but 60% the width (and consequently more flexible) in *A. bipunctatus*.

Based on the greater feather length, slender and flexible shaft, relative width of the inner and outer webs, and the greater specialization of the primary presumably for display in a contorted fan, I suggest that *A. bipunctatus* may have been flightless.

The origin of the feather fragment is unknown. Wood (1871a, b) found it amongst a bundle of feathers of *A. argus,* and one possibility is that these feathers had been marketed in the London plume trade. Only in 1891 was the specimen presented to the British Museum by Edward Bartlett (Warren 1966), and Bartlett's association from 1894 with the Sarawak Museum casts no light on the origin of the feather.

Delacour (1951) suggested *A. bipunctatus* might have lived on Java, presumably because Java is a large gap in the Sundaic range of *A. argus*. Javan ornithology, however, has a history beginning much earlier than the discovery date of *A. bipunctatus,* and such a bird is unlikely to have been missed by Horsfield, Raffles and others (Horsfield 1824). Flightlessness, and isolation from *A. argus,* imply an island distribution; island forms are often larger than mainland relatives (MacArthur & Wilson 1967), and larger feather size could indicate larger body size. Extant *A. argus* are found on only one offshore island, Pangkor (4° 15′N, 100° 32′E), where 25 km^2 of habitat is sufficient for a self-sustaining population. It is absent from a larger island, Tioman (2° 48′N, 104° 11′E). Tioman has nearly 100 km^2 of forest habitat over steep, dry and rocky slopes of a type which on the mainland Malay Peninsula constitute favoured habitat for *A. argus* (Delacour 1951, Davison 1981). Tioman, which became isolated by rising sea levels 15,000–20,000 years ago, is probably suitable to support a population of Argus (Medway 1966a) and has few mammalian predators (Medway 1966b). It has a history of habitation by villagers dating back several centuries (Bullock & Medway 1966), but was not zoologically explored until 1899 (Miller 1900).

I suggest that changing Pleistocene sea levels in the Sunda subregion could have isolated an *Argusianus* population on Tioman, where suitable habitat and paucity of predators might have permitted the evolution of larger size and flightlessness, and the sparse forest understorey might have selected for larger males with larger wing fans used in display. The history of occupation of Tioman by man might explain the recent extinction of a large edible bird prior to scientific discovery of its distribution.

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The use of *Espeletia* by paramo hummingbirds in the Eastern Andes of Colombia

by D. W. Snow

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Above the upper limit of woodland in the northern half of the Andes are extensive tracts of open moorland characterised by tussocky plants, many of which have their leaves arranged in "rosettes". The climate is cool and very wet. This zone of vegetation, generally known as the páramo, extends from c. 3200 m (the lower limit varying according to local conditions) up to the snowline. Vuilleumier & Simberloff (1980) discuss the definition of the term "páramo" from an ornithological point of view, and give botanical details; see also Cleef (1981). Three divisions are sometimes recognised: the subpáramo at lower levels, where there is a significant admixture of bushy plants; the typical páramo, mainly between 3400 and 4200 m; and the superpáramo at higher levels, where the vegetation is sparse and much rock and gravel remains exposed.

Among the many plants peculiar to the páramo, the genus *Espeletia* (family Compositae) is outstanding. The entire genus, consisting of some 80 species, is confined to the páramos of northwestern Venezuela, Colombia and northern Ecuador. Espeletias are not found on all the páramos in this area, being absent, for instance, from the greater part of the Western Andes of Colombia and from the Santa Marta massif; but where they occur they tend to be the most massive and conspicuous element in the vegetation, dominating miles of open moorland. They vary in size, but all have much the same form. The leaves grow in a rosette, starting at ground level in young plants. The old leaf bases are persistent, so that in older plants a "trunk" is formed, which in the largest species may be up to 3 m high but in most is not more than about 1 m. The long-stalked inflorescences, bearing yellow flowers like small sunflowers, grow from the middle of the rosette of leaves. The leaves and all parts of the inflorescences except the petals and flower discs are covered with a layer of whitish "wool", giving the plants, and the landscape in which they occur, a silvery appearance. Open flowers tend to be obliquely pendent, but may be orientated at all angles from horizontal to fully pendent. They do not produce nectar, and are probably pollinated mainly by bumble bees (*Bombus* spp.) which visit them to collect pollen.

The greatest concentration of *Espeletia* species occurs in the Eastern Andes of Colombia and adjacent parts of northwestern Venezuela (17 species in Boyacá and 11 species in Cundinamarca, Colombia; 10 species in Venezuela—Cuatrecasas 1979). Only 2 species occur in the central cordillera of northern Ecuador, and there is an isolated colony of 1 species at 1° S in Ecuador. Vegetation of páramo type, however, extends a good deal further south, reaching its southern limit at 8° S in Peru. Further south, from Peru through Bolivia to Argentina and Chile, páramo gives place at high altitudes above the tree line to the puna, a floristically very different kind of vegetation adapted to more arid conditions and greater extremes of temperature.

Between 1 August and 11 September 1982 I had an opportunity to carry out a limited field study (a total of 41 hours on 8 days) of the páramo hummingbirds of the Eastern Andes of Colombia. Most observations were made on the Páramo de Chisacá, c. 40 km SSW of Bogotá, at altitudes of 3450–3900 m. This is a spur of the extensive highland area generally known as the Páramo de Sumapaz. Briefer observations were also made on small patches of páramo on the mountains behind Bogotá, at altitudes of 3000–3200 m. In all these areas the espeletias were in full flower at the time of my visits.

The hummingbirds

Six species of hummingbirds were recorded foraging on the páramo in the Chisacá area: *Oxypogon guerinii, Chalcostigma heteropogon, Ramphomicron microrhynchum, Lesbia victoriae, Pterophanes cyanoptera* and *Colibri coruscans*. This appears to be the complete list of species which can be expected at high altitudes on the páramo de Sumapaz. A few others, such as *Eriocnemis vestitus* and *Aglaeactis cupripennis,* range up to the subpáramo—the former was common in such areas in the mountains behind Bogotá—but they do not, apparently, normally occur above this zone.

Pterophanes cyanoptera and *Colibri coruscans* were not associated with the espeletias; on the páramo they were seen only where large ground bromeliads of the genus *Puya* were in flower. *Pterophanes cyanoptera* is a very large hummingbird (wing up to 115 mm) with a long bill (c. 30 mm). It is probably a *Puya* flower specialist; its bill is well adapted to the corollas of the 2 species of *Puya* at which it was seen feeding (corolla tubes 35 and 39 mm). It was also seen feeding at the flowers of a mistletoe, *Aetanthus holtonii,* growing on small trees bordering open páramo. *Colibri coruscans* is a fairly large (wing c. 77 mm, bill 24 mm), ecologically adaptable species with a wide altitudinal range in Colombia and elsewhere in the Andes.

The 4 other species were closely associated with espeletias. They are small or medium-sized hummingbirds with short, straight and sharply pointed bills. *Ramphomicron* has the shortest bill of any hummingbird (c. 7 mm), while the bills of *Oxypogon* and *Chalcostigma* are very short for their size (c. 8.5 and 11 mm, respectively). These 3 species all have rather long tails. *Oxypogon* and *Chalcostigma* have unusually long legs and large, strong feet for hummingbirds (Dorst 1956, Carpenter 1976). The combination of short bill, long tail and long legs gives them a distinctive appearance, more like a small passerine bird than a typical hummingbird. *Lesbia* males have extremely long tails, and females much shorter tails that are still very long compared with most hummingbirds.

Exploitation of espeletia flowers

It soon became obvious that the flowers of espeletia were providing a major part of the food of all 4 of the short-billed hummingbirds. Their behaviour was so similar that the same account may apply to all of them. A bird feeding at espeletia flowers would either perch on a lower flower-head and stretch upwards to the one above, or cling to the flower-head (if necessary beating its wings to maintain its position); or, if neither of these courses was possible, it would hover close to it in typical hummingbird fashion. When in position, it probed the flower disc repeatedly and thoroughly, before moving on to an adjacent flower-head and repeating the process. In this way it would work through a clump of plants, more or less systematically visiting all the open flowers. Because of the density of the espeletias, it was usually not possible to watch a bird throughout the whole of a feeding bout, but it was common for bouts to last for 3 or 4 minutes, in the course of which 20 or 30 flower-heads would be visited.

I had no evidence that the hummingbirds were taking pollen from the flowers. Thus I never saw hummingbirds with pollen coating their forehead and chin, as Carpenter (1976) described for the high-altitude hummingbird *Oreotrochilus estella,* which eats the pollen and at the same time pollinates the composite *Chuquiraga spinosa* in Peru. On the other hand the probing behaviour strongly suggested that they were seeking food hidden in the interstices of the flower disc, and this interpretation is supported by other considerations. Espeletia flowers support very large populations of small phytophagous insects, whose numbers increase as the flowering period advances (Sturm 1979). From a sample of 10 flowers of *E. grandiflora* from 10 different plants, I extracted 135 small insects of the following lengths:—0–1 mm (6), 1–2 mm (99), 2–3 mm (24), 3–4 mm (5) and 4–5 mm (1). Except perhaps for the largest, of 4–5 mm, these are all of a size suitable for a small or medium-sized hummingbird, since they have a similar size distribution (but with a peak at 1–2 mm instead of 2–3 mm) to the insects collected from the crop contents of the larger hummingbird *O. estella* by Carpenter (1976). In August and September 1978, Dr. H. Sturm *(in lit.)* collected 1035 small insects from 52 flowers of *E. corymobosa* (mean, 20 per flower), and 37 insects from 2 flowers of *E. grandiflora* (mean, 18.5 per flower). Thus the sample which I collected was not unusually large.

Further, I saw *Chalcostigma* feeding in exactly the same way at dead, blackened flower heads of espeletia, which certainly provide neither nectar nor pollen but do contain insects. The common small furnariid of the open páramo, *Leptasthenura andicola,* undoubtedly an insectivore, clings to espeletia flowers and probes the discs in just the same way as the hummingbirds. I therefore conclude that the hummingbirds probe the flower heads for insects and that, when the flowers are available, they are the richest source of small insects for a hummingbird and one that is available in all weathers.

OTHER METHODS OF FORAGING

Especially when the weather was fine, *Oxypogon* and *Chalcostigma* frequently hawked for insects in sheltered places, especially in the lea of a bank or cliff or among low bushes growing in sheltered places. Most often I saw them hawking for flying insects between 1 and 3 m above the ground, and occasionally gleaning insects from the twigs and leaves of shrubs. Twice I saw *Chalcostigma* gleaning from rock faces, and 4 times I saw *Oxypogon* clinging to rock faces and collecting something that was too small to see. *Ramphomicron* also hawked for insects frequently, especially (in the cases observed) from higher tree tops along woodland edge.

In comparison with the 2 main methods of insect-foraging, from espeletia flowers and by hawking and gleaning, the short-billed hummingbirds were taking very little nectar. I never saw *Oxypogon* visit any flower except espeletia, in spite of watching birds for minutes on end when they were insect-foraging within a short distance of clumps of *Castilleja fissifolia* and other suitable flowers. *Ramphomicron* was once seen to make a brief visit to the small mauve flowers of *Geranium hirtum,* which lack a corolla tube, and can hardly be an important nectar source. I did not see *Lesbia* visit flowers on the open páramo, though they do so regularly at lower elevations. *Chalcostigma,* however, visited flowers quite frequently. I had records for 3 kinds of small ericaceous shrubs (*Pernettya* and *Gaultheria*), *Bartsia santolinaefolia, Rubus* cf. *gachetensis,* and *Castilleja fissifolia*; all were more or less brief visits, interspersed between longer bouts of insect-foraging. These flowers are all small (corolla tubes 5–12 mm) and cannot provide large quantities of nectar.

OTHER OBSERVATIONS ON *Oxypogon guerinii*

At just after 06.00 hours in the morning of 5 September, in cloud and driving rain and with an air temperature of about 4° C, I watched 2 males of *Oxypogon* foraging on the open páramo fully exposed to the weather. In conditions of poor visibility my attention was drawn to them by hearing a squeaky monosyllable, *seep,* repeated at intervals of about 3 seconds. Thinking that it might be a young bird food-begging I approached the sound, to find that in both cases it was a male *Oxypogon* calling from low perches on the espeletias between bouts of feeding from the flower discs. The 2 birds were just in auditory contact, and both were foraging within restricted areas. Later, I heard another calling in the same way in another part of the páramo. Other observations indicated that individuals coming into contact with one another on the open páramo behave aggressively, and it seems most probable that the calling males were advertising their ownership of a feeding territory. The persistence of the calling in such adverse conditions is otherwise hard to interpret.

I did not see female *Oxypogon* behaving in this way, and in fact saw them only in more sheltered places along cliff faces and in gullies. In one such place, under a rock overhang, one of the students of the party with whom I was camping on 4 September drew my attention to a nest attached to dry vegetation hanging from the ceiling of the cave. It proved to be a nest of *Oxypogon* containing 2 eggs, which a female was incubating. About 4 m away, also attached to vegetation hanging from the cave roof, was another nest, empty but in good condition. On the following day, as this second nest was still empty and we had to leave the area, I collected it for the Museo de Historia Natural of the Universidad Nacional de Colombia.

The nests were extremely large for the size of the bird; both were bulky cups of similar construction, and were suspended in the same way, being attached on one side to the supporting vegetation. The collected nest had the following dimensions: external diameters 93 and 79 mm (i.e. oval, not circular in plan), external depth 75 mm, diameter of cup 32 mm, depth of cup 24 mm. It was very light for its size, weighing 10.5 g. It was constructed of moss externally, with a thick and dense lining of a pale, soft material which on later examination proved to be matted "wool" from the leaves or inflorescences of espeletia. In fact, a careful search of the surrounding vegetation had shown that there was no other plant that could have provided material of this kind. The thickness of the nest lining, as measured round the rim of the cup, varied from 12 to 20 mm. Puzzlingly, no cobweb could be seen on the surface of the nest, which appeared to be attached to the hanging twigs of a small dry shrub by some longer strands of vegetable fibres that were embedded in the nest and entwined among the stems of the supporting plant. Consequently the nest came away very easily when pulled.

Oxypogon was seen several times interacting with *Chalcostigma*; on all occasions it was displaced, and sometimes chased, by the larger species. Once a female *Oxypogon* was seen to attack and chase a male *Ramphomicron* which intruded in an area, close to a cliff face, where the *Oxypogon* had been perching and feeding and which it may have been defending as a feeding territory and potential nesting territory. In all these encounters dominance was strictly in order of size.

Discussion

These observations show that the 4 short-billed hummingbirds were, at the time of my visits, depending heavily on espeletia flowers for their food supply, and suggest that *Oxypogon* could not have built an effective nest without "wool" from the espeletias. How general is the dependence of páramo hummingbirds on the genus *Espeletia*? A review of the scanty data from other sources throws some light on the question.

Food and feeding habits. No quantitative data are available, but it seems that *Oxypogon* and *Chalcostigma* are very largely, at times probably exclusively, insectivorous. Dorst (1956) reported that *Chalcostigma olivaceum* was entirely insectivorous in an area of puna in Peru, during the period of his study, as there were no suitable flowers available to it. At times both *Oxypogon* and *Chalcostigma* regularly forage for insects on the ground. Ruschi (1961, 1973) has described how *Oxypogon* may spend the greater part of the day foraging on the grass, walking and making small forward and sideways jumps to take small insects. Vuilleumier (1969) has observed *Chalcostigma olivaceum* in the Bolivian Andes walking about on densely matted grass, picking up insects, and cited similar observations for *C. stanleyi* in Ecuador. Terrestrial foraging has apparently not been recorded for *C. heteropogon,* probably for lack of observations in the right circumstances. I never saw it or *Oxypogon* behaving in this way. It seems probable that probing for insects in espeletia flower heads is a more efficient way of foraging, and that when these flowers are available in quantity the hummingbirds do not resort to ground-feeding.

Vertical (altitudinal) movements have been reported for several Andean hummingbirds, but they are little understood. Vuilleumier & Ewert (1978) quote P. Schwartz as noting that in northwestern Venezuela *Oxypogon* is seldom, if ever, seen in open páramo vegetation outside the main flowering season (apparently August-November), but do not mention its visiting espeletia flowers. Schwartz found a young bird just out of the nest in mid-December. At times *Oxypogon* is recorded at considerably lower levels, well below the páramo zone. These facts suggest that *Oxypogon* may undertake vertical migrations, perhaps only over short distances, ranging up into the páramo, and breeding there, when the espeletia flowers provide an abundant supply of insect food.

A short, sharply pointed bill is clearly efficient for probing espeletia flowers; but this kind of bill cannot have evolved as a specific adaptation to espeletias. All the Colombian hummingbirds with bills of this kind have ranges that are wider than the range of espeletias, in some cases much wider. Other species of *Chalcostigma* with bills similar to that of *C. heteropogon* occur well to the south of the range of espeletias. Dorst (1956) reported that *C. olivaceum* often probes for insects among the thick mat of hairs that covers the cushion cacti *Opuntia lagopus* and *O. floccosa*. Probably a short, sharp bill is generally efficient for picking and probing for insects in thickly clustered or matted vegetation of many different types, so that hummingbirds with this kind of bill were pre-adapted to exploit the concentrated insect food provided by espeletia flowers.

A short, straight bill also fits the small flowers with short corolla tubes that are characteristic of páramo vegetation. Caution is needed, however, in interpreting this matching of bill and flower as co-evolutionary; and in particular it needs to be known whether or not the hummingbirds are the main pollinators of the flowers.

Nesting. The first account of the nesting of *Oxypogon* was given by Rusch (1961), who found several nests in the Andes of northwestern Venezuela. His description indicates that they were similar to the nests described here, being thickly lined with white wool from a species of espeletia, *E. schultzii,* and they were also placed under rocky overhangs. A very similar kind of nest, placed in similar sites, is built by *Oreotrochilus estella*, which nests at very high altitudes in the puna zone of Peru and neighbouring countries (Dorst 1956, Carpenter 1976); but in the puna (where espeletias are absent) the nests are insulated mainly with the wool of alpacas, llamas and domestic sheep, material which is not available in the northern Andes where *Oxypogon* breeds. Hence it might be concluded that espeletias are essential for any hummingbird nesting on the open páramo. There must, however, be alternative materials in some areas since, as already mentioned, espeletias do not occur in some parts of the Colombian Andes, nor in the Santa Marta massif, where *Oxypogon* occurs and undoubtedly breeds. Perhaps the most likely alternative is the wool from the leaves of *Senecio,* a widespread composite genus of which some Andean species are superficially rather similar to espeletias.

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The identity of Buffon's *Grand Traquet,* and other mysteries in eighteenth century descriptions of birds from the Mascarene Islands and their nomenclature

by A. S. Cheke

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In the course of research into the early literature on the endemic birds of the Mascarene Islands in the Indian Ocean (Mauritius, Réunion, Rodrigues), I have come across 2 cases where the generally accepted names and authorities prove not to be the oldest available. In drawing attention to these, I am intending only to clarify the nomenclatural history of these species, not to change established names; indeed the names discussed below are *nomina oblita* according to the *International Code of Zoological Nomeclature* (Art. 23).

In what follows it should be recalled that during the 18th Century Réunion was known as "Bourbon" and Mauritius "Ile (or Isle) de France". Alfred Newton's survey of the state of ornithology and nomenclature at that time (Newton & Gadow 1896, Introduction: 9–14) provides useful background material on the reasons for the multiplicity of bird-naming compilations in the 1770s and 1780s.

THE REUNION GREY WHITE-EYE *Zosterops borbonicus*

The name *Zosterops borbonicus* is nowadays always quoted as being founded on the *Motacilla borbonica* of Gmelin (1789, Vol. 1 part 2: 981; viz. Berlioz 1946, Stresemann 1952, Storer & Gill 1966, Moreau 1967; see Hopkinson 1908 for publication dates of Gmelin's edition of the *Systema Naturae*). Gmelin in turn based his name on the "Figuier de l'isle de Bourbon" of Brisson (1760, 3: 510), illustrated by Plate 705, fig. 2 of the *Planches Enluminées* (Daubenton & Martinet 1765–80). The *Planches Enluminées* however also depicts a "grimpereau de l'isle de Bourbon" at Pl. 681, fig 2. This shows a bird closely resembling in colouration the highland (dark-bellied) brown-headed morph of the Réunion Grey White-eye, except that it has a rather long bill and yellowish (instead of white) rump and under-tail coverts.

As K. C. Parkes (*in litt.*) has suggested that this plate represents in fact the *other* (the Olive) Réunion white-eye, currently known as *Z. olivaceus* L. 1766, some further discussion is needed to establish it as a Grey White-eye. Parkes's alternative suggestion arises from the anomalous bill and rump of the plate, and Buffon's description (1778, 6: 348 "Souimanga de l'isle de Bourbon", actually by Montbeillard) of what purports to be that same specimen, in which the back colour is described as greenish-brown (it is dark chestnut in the plate). While it is true that the Olive White-eye has a greenish-yellow rump, yellowish under-tail coverts and a long bill like a sunbird (with which group Buffon classed the bird), the back is never remotely brownish, nor the flanks chestnut-rusty (they are whitish with, sometimes, a brownish wash). Moreau's "rufous" (1957) could be taken against this, but in context is only relative; Gadow (1884) correctly described the flank colour as "pale isabelline or russet brown", and this is confirmed by Berlioz (1946), Gill (1971), Barré & Barau (1982) and my own colour slides of live birds in the hand (the one reproduced in Staub (1976) is too poorly rendered to be of use). Montbeillard described the flight feathers as blackish edged paler (but not green), and, more significantly, made no mention of a white eye-ring, though there is a faint pale zone in the plate which Parkes suggests represents this feature. Fortunately, however, we have Montbeillard himself as a counter-check. A few pages earlier (6: 337), he redescribed Brisson's "Grimpereau olive de Madagascar" (1760, 3: 625), giving a much more accurate description of a Réunion Olive White-eye, complete with eye-ring, grey-brown underparts, olive-green upperparts and edgings to flight feathers, and the characterstic dark crown and forehead (cf. Gadow 1884, Berlioz 1946, Gill 1970, 1971, Barré & Barau 1982). Apart from another over-long bill, the measurements given also closely fit the Réunion Olive White-eye, though Montbeillard submerged it as a "variety" of his "Soui-manga olive à gorge pourprée". The currently accepted name for this species, *Z. olivaceus* (from Linneaus's *Certhia olivacea* of 1766 (Moreau 1957b), is founded on Brisson's adequate description of this bird, stated to occur in Madagascar, but based on a specimen originating in Bourbon (Brisson *loc. cit.,* Moreau *loc. cit.*), the same specimen later described by Buffon/Montbeillard and illustrated rather badly by Plate 575 : 1 of the *Planches Enluminées*.

The bird's bill in Plate 681 : 2, while more suited to an Olive than a Grey White-eye, is not in fact much outside the range found in the latter (based on bill: wing (exposed primaries) ratio taken from several pictures and colour slides, varying in the Grey from 3.3 (Berlioz 1946) to 5.2 (Gill 1973), and in the Olive from 3.3 (*Pl. Enl.*) to 3.7 (Barré & Barau 1982); in Pl. 861 : 2 it is 3.1). The rump colour (chestnut-yellow in the plate, greenish-yellow in Montbeillard's description) is probably due to staining in the preparation of the specimen. I therefore believe that the plate definitely represents a Réunion Grey White-eye.

Gmelin (1788, 1: 471), citing Buffon's description first in his synonymy, called Pl. 681 (2) *Certhia burbonica* (*sic*; obviously a typographical error). However Boddaert (1783) had already applied the same name to Pl. 681 (2), founding his name directly on the picture; thus even if the bird Montbeillard was describing (and hence Gmelin's name) is open to question, Boddaert's name, given to the much less equivocal plate, stands. *Certhia borbonica* Bodd. 1783 is thus the oldest legitimate binomial for the Grey White-eye on Réunion, a fact recognised long ago by Schlegel (Schlegel & Pollen 1868, Newton 1868), but subsequently forgotten. As no name change is required, I propose that Boddaert be again accepted as the authority for the name of this species. This avoids the undesirable awkwardness of a junior homonym being used as the valid name.

The white-eye specimens drawn by Martinet for the *Planches Enluminées* have long since disappeared (pers. obs in Paris museum; Storer & Gill 1966; see also footnote p. 274 of Jouanin 1962), so Pl. 681 (2) becomes the lectotype of *Certhia borbonica* Bodd. The other Réunion Grey White-eye depicted, Pl. 705 : 2, shows, to my eye (& Parkes's, *in lit.*), Gill's (1973) lowland brown-headed brown form, pale bellied (*contra* Storer & Gill (1966) who thought it nearer the darker upland morph).

Some further complication might arise if it was thought desirable to revive the various subspecies of Grey White-eye that have been described in the literature; these varieties are at present treated as colour morphs of a single race (Gill 1973). Storer & Gill (1966), describing 2 new subspecies and designating 2 others from existing names, decided not to base the nominate race on Brisson's or Buffon's descriptions, nor on the *Planches Enluminées,* but rather to follow Hartlaub's (1877) deliberate designation of the grey-headed brown form as nominate *borbonicus*. I believe this remains the best course, as official nomenclatural identification of any of the colour morphs (="races") with the type picture would result in the name *borbonicus* being transferred from one morph to another, an obviously undesirable move. Indeed all 3 brown-backed morphs are candidates for being nominate *borbonicus*: the highland brown-headed ("*alopekion*") from *Pl. Enl.* 681: 2, the lowland brown-headed ("*xerophila*") from *Pl. Enl.* 705: 2, and the grey-headed as designated by Hartlaub. The Mauritian race remains *Z. b. mauritianus* Gmelin 1789 ("*Motacilla mauritiana*"), based on the "figuier bleu" of Buffon (again actually Montbeillard) and Pl. 705 (1) of the *Planches Enluminées* (which Boddaert wrongly assigned improbably to the *Motacilla sialis* of Linnaeus, otherwise the North American Bluebird).

THE MAURITIUS CUCKOO-SHRIKE *Coracina typica*

Buffon, or rather Montbeillard, described, under the title "Grand Traquet" (1778, 6: 122), a bird of unknown origin said to have been remarked on by Commerson, presumably in the manuscripts of the by then dead traveller-naturalist. Oustalet (1897) discussed aspects of the surviving Commerson MSS at some length, but does not reveal that he found anything (description or drawing) pertaining to the "Grand Traquet". He was, however, only considering known Mascarene matters, and would no doubt have overlooked this bird of unknown provenance. Commerson's own name for the bird, if any, is not recorded, though the MSS are still preserved in Paris (Laissus 1978) and might yet reveal more information.

Montbeillard described the bird as follows (my translation): "It is with good reason that we call this bird the Great Chat; it is seven and a quarter inches from the tip of its beak to the end of its tail [=196 mm, a French inch was 27.07 mm], and six and a half inches from the top of the beak to the tip of its claws. The beak is an inch long, without notches. The tail, about two inches long, is a little forked; the folded wing covers half of it. The tarsus is of eleven lines [25 mm; 12 lines=1 inch]; the middle toe seven, the rear one as many; its claw is the biggest. Mr. Commerson reported the existence of this bird without indicating the country where he saw it, but the description which we give here may permit its recognition and rediscovery by travellers. Brown is the dominant colour. There are two tones of brown intermingled on the head; a uniform brown covers the upper side of the neck and body. The throat is a mixture of brown and whitish. The breast is brown, which is also the colour of the wing-coverts and the outer web of the primaries, the inner being split rusty and brown. This brown is also found at the extremity of the tail feathers, and covers half the middle ones, the rest being rusty but for the outer webs of the two outer feathers which are white. The underside of the body is rusty coloured."

This description closely fits a female Mauritius Cuckoo-shrike (*viz.* Pollen 1866, Sharpe 1879, Benson 1971, & photo in Staub 1976), a bird now usually known as *Coracina typica* (ex *Oxynotus typicus* Hartlaub 1865), *viz.* Peters *et al.* 1960), and whose unhappy nomenclatural history has been summarised by Newton (*in* Pollen 1866) and Sclater (1914; 1924–30, 2: 593). Commerson spent four and a half years (1768 till his death in 1773) based in Mauritius, and described and illustrated many birds from the Mascarenes in his notes, which were eventually to reach Buffon (Oustalet 1897). Sonnerat, who worked for Commerson in Mauritius from 1768 to 1771 (Ly-Tio-Fane 1978), listed a "Pie-grièche [shrike] de l'isle de France, appellée le Serrurier" in a MS list of his collections (Oustalet *loc. cit.*, footnote p. 56), so it is clear that he collected a Mauritius Cuckoo-shrike, probably for Commerson and thus probably the bird that Buffon described.

Apart from its historical interest, the significance of the identification of this bird of Buffon's is that Gmelin gave the Grand Traquet a Linnean name, *Motacilla magna* (1789, 1 (2): 968), thus establishing considerable priority for the species. However this name has of course never been used in the literature, and should be placed on the Official Index of Rejected Names. The type specimen, if indeed Montbeillard was using a specimen rather than copying Commerson's description, no longer exists (Jouanin 1962).

OTHER QUERIES

There are several other birds in the 18th Century encyclopaedias listed as coming from the Mascarenes, but not identifiable with any extant or recent member of the avifauna. Some are due to errors in labelling, the bird really coming from elsewhere. Stresemann (1952) considered the oriental collections in Brisson as a whole, and established that the "Guespier de l'isle de France" (*Pl. Enl.* 252) was collected by Poivre in the Philippines (*Merops americanus* P. L. S. Müller=*M. bicolor* Bodd.=*M. badius* Gm., all now synonymised with *M. viridis* L.). Likewise the "Bovreuil de l'isle Bourbon" (*Pl. Enl.* 204: 1), Buffon's "Bouveret", is the South American emberizid *Sporophilia bovreuil* (ex *Loxia bovreuil* P. L. S. Müller 1776 = *L. nigroaurantia* Bodd. = *L. aurantia* Gm.); Hellmayr (1938) gave some details, though it seems Müller intended to call it *L. bourbonensis,* but confused the 2 birds on Plate 204 (see Sharpe's synonymies, 1888 pp. 113 & 347). Two others, also first appearing in Buffon, and in the *Planches Enluminées,* are the "Merle Vert de l'isle de France" (1778, 5: 240 & 648: 2) and the un-named second flycatcher from Bourbon (1775 4: 107 & 572: 3). Neither has been definitely identified with any existing species. The "merle vert" has been referred to the glossy starling genus *Calornis* (see Giebel 1872–77, Oustalet 1897), now called *Aplonis,* but has long *Sturnus*-like pointed feathers on the head and neck which *Aplonis* spp. lack, appears paler in both the picture and the description than any glossy starling, and is also somewhat too small. The "flycatcher", judging by the picture rather than Buffon's very cursory description, can only be an American Redstart *Setophaga ruticilla* (L.) or a very closely allied but undiscovered form: the underparts are reddish and buff rather than white, but no other small flycatcher-like bird has the same pattern of red patches on wings and tail (cf. the very accurate rendering of *S. ruticilla* in *Pl. Enl.* 566: 1). The "merle vert" carries the latin name *Turdus mauritianus* Gm., the "gobe-mouche" that of *Muscicapa rufiventris* Gm.

At least one species cited, Brisson's "Gros bec de l'isle de Bourbon" (=*Lonchura striata* (L.); *Pl. Enl.* 153: 1) represents a temporarily successful introduction to the island (Stresemann 1952), the source of information and the specimen, Lanux, being impeccable; no "jacobins" have been reported since (Cheke in press a).

The "Mordoré" (1778, 5: 103 & 321: 2), also from Bourbon, appears, as Berlioz (1946) pointed out, to be simply one of the frequent colour sports of the Madagascar Fody or Cardinal *Foudia madagascariensis.* Hachisuka (1953) and Moreau (1960) preferred to see in it an extinct Réunion fody, although it does not correspond in plumage to the abundant "moyneaux" described in the 1670s by Dubois (Berlioz *loc. cit.*) and already extinct before the end of that century (Cheke in press a). The "Mordoré" has acquired a Linnean name: *Foudia bruante* (ex *Fringilla bruante* P. L. S. Müller=*Emberiza fuscofulva* Bodd.=*E. borbonica* Gm.).

This leaves the 'Gobe-mouche de l'isle de France" (1778, 5: 238) on which Gmelin based his *Muscicapa undulata* (1789, 1 (2): 940). This bird, blackish-headed, rusty-backed and mottled blackish, rusty and white below, has been assimilated by some authors to the African *Muscicapa adusta* (Sharpe (1879) gave a synonymy), though it is hard to see why, as the African bird is dull grey-brown. While it clearly is not *M. adusta,* equally it cannot with certainty be equated with the known Mauritian flycatcher *Terpsiphone bourbonnensis desolata* Salomonsen 1933, although the description bears some resemblance to birds moulting from juvenile to adult plumage (Cheke in press b), except that actual Mauritius Paradise Flycatchers never show any white. Buffon baldly stated that the specimens (apparently a male & a female) were sent from the Ile de France, but gave no further particulars. As the specimens, like most of the Cabinet du Roi described by Buffon, are no longer extant (Stresemann 1952, Jouanin 1962), it seems unlikely that "*Muscicapa undulata*" can be satisfactorily identified. Buffon did, in fact, have available a good description of the Mauritian flycatcher sent him by de Querhoent (1773), and prepared this for publication under the title "Le Coq Maron de l'isle de France gros comme une gorge rouge"; but the supplement for which it was intended was never published.

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Bird specimen records of some uncommon or previously unrecorded forms in Egypt

by Steven M. Goodman & George E. Watson

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This paper documents some new or rare distributional records of species and subspecies obtained in Egypt (excluding the Sinai) and examined as skins unless otherwise stated, in the following museums: Field Museum of Natural History (FMNH), Chicago, a portion of which is part of the Conover Collection (CC); Giza Zoological Museum (GZM), Cairo; and the National Museum of Natural History, formerly United States National Museum (USNM), Washington, D.C. The principal collectors include: Dr. Harry Hoogstraal (FMNH); the late Abdallah El Negumi (GZM); Palearctic Migrant Survey (PMS) (see Hubbard 1967a, b, Watson 1971). Notable new records from autumn 1966 and spring 1967 PMS field seasons were reported by Hubbard & Seymour (1968). Wherever possible we have used the gazetteer of Osborn & Helmy (1980) for the spellings and coordinates of Egyptian localities. The systematic order follows Vaurie (1959, 1965).

Tachybaptus ruficollis ruficollis Little Grebe

A ♀ (USNM 550933) collected at Lake Manzala, 8 January 1971, is the first museum specimen record from Egypt of the nominate form (identification kindly confirmed by R. W. Storer), which breeds in Europe, the Near East and northwestern Africa. Little is known about its winter movements, so that from which part of the breeding range this migrant likely came is unknown.

Milvus milvus milvus Red Kite

A ♂ (GZM B452) captured alive (date unknown) at Abu Rawash (30° 02′N, 31° 06′E), Giza Governate, later dying in the Giza Zoo, 14 Sep 1942 is the first definite specimen record from Egypt of this species. This subspecies breeds in portions of Europe, the Middle East and northwest Africa (Vaurie 1965), is migratory in the northern portion of its range and has been recorded in Israel (Arnold 1962) and during August in Libya (Bundy 1976). In the early ornithological literature of Egypt, *M. milvus* was confused with the common Black Kite *M. migrans*, and consequently all previous records reported from the country were rejected by Meinertzhagen (1930). The only reliable records of the Red Kite in Egypt are those of Moreau (1928), who observed one along the Suez Canal in May; of El Negumi *et al.* (1950), who reported taking single birds near Abu Rawash in Jan and Dec 1939 and Jan 1943; and of Bijisma (1982), who observed 11 individuals near Suez between 27 Sep and 7 Oct 1981. One of the 1939 records of El Negumi *et al.* could be the same bird as the specimen reported here.

Charadrius asiaticus Caspian Plover

One, unsexed, (FMNH, CC 23734) "netted in tamarisk tree" at Bahig (30° 56′N, 29° 35′E), Matruh Governate, 14 Oct 1962, is the first known from Egypt. This record was briefly mentioned by Hoogstraal *et al.* (1964). Heuglin (1874) reported sightings from the northern coast and the Gulf of Suez, but Meinertzhagen (1930) rejected the records as too inconclusive. On migration the Caspian Plover passes quickly from its central Asian breeding grounds via a narrow corridor through Iraq and Syria to the Arabian Peninsula and thence across the Red Sea to wintering grounds in eastern and southern Africa (Nielsen 1971). However, it has been reported in northwestern Sinai (Etchécopar & Hüe 1967), at Ras el Bar, 20 Oct 1943 (Meiklejohn 1944), near Cairo by Sherif M. Baha el Din, Apr 1980 (Anon. 1981) and Dakhla Oasis, 24 Apr 1981 (P. L. Meininger, W. C. Mullié and S. M Goodman).

Pterocles coronatus coronatus Coronetted Sandgrouse

Specimens recording exceptional distribution in eastern Egypt include: ♂ (FMNH, CC 25103), Wadi Umm Taghir (26° 41′N, 33° 46′E), 35 km west of Safaga, Red Sea Governate, 16 May 1968; ♂ (GZM A2469), Wadi Kansathrope (in the Eastern Desert near Gebel

Elba, precise locality not found), Sudan Government Administration Area, 30 Dec 1938; 2 ♀♀ (GZM A2018 & A2019), Mersa Halaib (22° 13′N, 36° 38′E), Sudan Government Administration Area, 22 Dec 1938. These are the first records from the Egyptian Eastern Desert—previously known in Egypt only from the Nile Delta, Wadi Natroun and other areas west of the Nile Valley (Vaurie 1965). The darker and more heavily barred *P. c. vastitas* is found in the Sinai and Israel.

Oena capensis capensis Long-tailed or Namaqua Dove

Two ♀♀ (USNM 551110 & 551111) taken near Kom Ombo (24° 28′N, 32° 57′E), Aswan Governate, 27 Dec 1971, had heavy fat deposits. These are the first records in Egypt other than those collected in the extreme southeastern corner near Gebel Elba, Sudan Government Administration Area (Goodman in press). Specimens from the Gebel Elba region, include a [♂] (sexed by plumage, FMNH, CC 25104), taken at Wadi Akwamtra (22° 13′N, 36° 18′E), 16 Feb 1967 and a ♂ (GZM A2190) and a ♀ (GZM uncatalogued) both taken at Gebel Elba (22° 11′N, 36° 21′E), 4 Mar 1938.

Apus pallidus brehmorum Pallid Swift
Apus pallidus illyricus

Although the small pale subspecies *A. p. pallidus* is known to breed in the Nile Delta and Valley south to Luxor, the Faiyum and in the Dakhla and Kharga oases (Meinertzhagen 1930), darker and larger individuals (USNM and FMNH) have been taken along the northern coast near Bahig in which the wing measurements of ♀♀ taken between 5 Apr and 20 May were 161–170 mm (n=13, av.165.5) and of ♂♂ collected between 8 Mar and 24 May were 162–173 mm (n=15, av.166.4). In colour and wing length these coastal birds are inseparable from a small series of *illyricus* collected in Aegean Greece between 24 Apr and 6 Jul (sexes combined, 162–174 mm, n=12, av.167.8). The only other published record of *illyricus* from Egypt is a single bird obtained by Meinertzhagen (1930) at Salum, west of Bahig, 21 Jan 1920 (wing 170 mm, British Museum (National History) No. 1965.M.5551, examined by SMG). The presence of these dark birds in late May is strongly suggestive of local breeding along the northern coast, but this needs to be verified.

A ♀ (FMNH 256970) collected at El Lahun (29° 13′N, 30° 59′E), El Faiyum Governate, 4 Dec 1959, and a ♀ (USNM 551166) and a ♂ (USNM 551165) taken in the Dakhla and Kharga oases, Western Desert Governate, 13 and 16 Jan 1972, (wings 164, 167 & 171 mm respectively) approach the plumage colouration of *A. p. brehmorum,* the breeding subspecies of eastern Mediterranean Europe and northwestern Africa east to Cyrenaica (Vaurie 1965). Until these specimens were available, there was no indication that *brehmorum* occured in Egypt. Meinertzhagen (1930) assigned the breeding Pallid Swifts of the Faiyum and Dakhla and Kharga oases to nominate *pallidus*. Since the specimens reported here were taken during the winter it is not possible to determine if they were migrants or local breeding residents.

Very little is known about the movements of *brehmorum* and *illyricus* owing to the difficulty of identifying to subspecies the few specimens that have been collected on migration or on the wintering grounds (Lack 1956); *brehmorum* has been reported from Derna, northeastern Libya in early Apr (Hall & Goodwin *in* Stanford 1954) and from Darfur, Sudan in June (de Roo *in* Moreau 1972).

Apus melba melba Alpine Swift

A ♂ (GZM uncatalogued) was secured at Dokki, just outside Cairo, 31 Oct 1957. Although the Alpine Swift has been observed frequently in Egypt, this represents the first known specimen record. Sight records are scattered throughout most of the year; September (Schrader 1892); March 1923 (Meinertzhagen 1930) in El Faiyum; 6 Apr 1943 (Hutson 1944) at Cairo; 18 Jan 1979 (Meininger & Mullié 1981) between Beni Suef and El Minya; and 23 Feb 1979 (S. M. Goodman and P. F. Houlihan) at Luxor.

Nominate *melba* breeds in Morocco and southern Europe, east through Asia Minor to northern Iran, and winters in portions of sub-Saharan Africa (Brooke 1971, Vaurie 1965). The paler subspecies *tuneti* breeds in the Middle East to southern Iran and in North Africa from Libya west to Algeria, and is thought to winter in southern Arabia, northeastern Africa and the Sahara. Intermediate birds occur on islands in the eastern Mediterranean. The migration routes and wintering grounds of the 2 subspecies are poorly known. The nominate form has been recorded in northern Libya (Hall & Goodwin *in* Stanford 1954) and in Israel (Brooke 1971). The form *tuneti* may also winter in Africa and may be represented by some of the Egyptian sight records.

Jynx torquilla tschusii Wryneck

Two specimens, one unsexed (USNM 569056) and a ♂ (USNM 552625) taken at Bahig, 18 Apr and 10 Mar 1971, both had heavy fat deposits and are distinctly smaller and darker than nominate *torquilla*. These are the first known Egyptian specimens of *tschusii*, which breeds in Italy, Sicily, Sardinia and perhaps Corsica and was previously known in Africa only as a winter visitor to northern Tunisia and Algeria (Vaurie 1965). The lighter and larger European form *torquilla* is a fairly common migrant in Egypt and is represented by over 35 PMS specimens.

Rhampocorys clotbey Thick-billed Lark

One, unsexed, (GZM B472) was found injured at Mersa Matruh (31° 21′N, 27° 14′E), Matruh Governate, 16 Sep 1941 and expired 30 Sep 1941. The soft parts were recorded as "legs pale straw, bill dull pink, eyes black". Meinertzhagen (1930) reported 3 other specimens of this desert lark taken along the Cairo-Suez Road 2 Jul 1922, Aug 1923 and 21 Jan 1928. Jourdain & Lynes (1936) described 2 more specimens (both examined by SMG) in the collection of the Entomological Society Museum, Cairo collected along the same road 21 Jul 1922. Excluding the type ("ex Deserto Egypt"), the Mersa Matruh specimen represents the only September record and the first in Egypt west of the Nile.

Prunella modularis obscura Dunnock
Prunella modularis modularis

Two subspecies of Dunnock are represented in the PMS collections. Three specimens are the first records of *obscura* in Egypt. A ♂ (USNM 533469) collected at Bahig, 23 Nov 1966, had an unossified skull, light fat and weighed 17.8 gms. Another ♂ (USNM 550596) and a ♀ (USNM 550594) taken at Bahig, 4 and 12 Nov 1969, had unossified skulls and medium and heavy fat deposits (respectively). This subspecies breeds in the Crimea, Caucasus, Transcaucasia and portions of the Middle East, and was previously thought to winter only on the breeding grounds and in Iraq and Iran (Vaurie 1959). Hubbard & Seymour (1968) listed the 23 Nov specimen as *P. m. modularis*; however, the distinct heavily streaked brown flanks, light brownish-grey upperparts and brown dorsal spotting of this and the other 2 specimens are characteristic of *obscura* rather than of European *modularis* (Watson 1961).

Nominate *modularis* was recorded in Egypt by Meinertzhagen (1930) on the basis of a specimen collected by Nicoll at Giza, 26 Feb 1917, and is represented by 3 PMS specimens: a ♀ (USNM 533470) taken at Bahig, 14 Nov 1966 (Hubbard & Seymour 1968); another ♀ (USNM 550595), with unossified skull and medium fat deposits, collected at Bahig, 27 Nov 1969, and a ♂ (USNM 551771), with ossified skull and heavy fat deposits, taken at Mersa Matruh, 11 Mar 1970.

Locustella fluviatilis River Warbler

The first known specimen of the River Warbler from Egypt was a ♀ (USNM 533474) taken at Bahig, 30 Sep 1966 (Hubbard & Seymour 1968). Since then, 7 additional specimens have been taken at Bahig between 28 August and 3 October (all in USNM). This species' main passage from the central and eastern European breeding grounds is recorded from Kenya to Transvaal, but it has been found several times in North Africa and the Middle East, for example: at sea (33° 15′N, 26° 10′E), in the cockpit of a helicopter, c. 420 km northeast of Alexandria, 12 May (Tuck 1964); in northeast Sinai, 29 Sep (Etchécopar & Hüe 1967); in northwestern Libya, 11 Apr (Guichard 1957); in Algeria, 23 Mar (Dupuy & Johnson 1967); in Morocco, 3 Apr and 23 and 25 Mar (Smith 1968). These records and specimens may indicate that River Warblers migrate predominantly through North Africa to the wintering grounds rather than via the Arabian Peninsula and then across the Red Sea into East Africa.

Sylvia nisoria nisoria Barred Warbler

Hubbard & Seymour (1968) reported the first 2 specimens from Egypt: a ♂ (USNM 533473) and one, unsexed, (FMNH 268674) taken at Bahig, 4 May 1967 and 13 Oct 1962 (respectively), though the latter was first mentioned by Hoogstraal *et al.* (1964). Since then, an additional 16 specimens have been collected in Egypt (all in USNM), composed of 3 spring records between 4 and 9 May at Bahig and one on 24 Apr at Mersa Matruh, and 12 autumn records between 27 Aug and 23 Oct at Bahig. All specimens examined showed the distinctly darker dorsal colour in both sexes typical of European birds.

Sylvia hortensis crassirostris Orphean Warbler

Six PMS specimens (4 ♂♂ (USNM 552670, 551564, 552671 & 550750) taken at Bahig 23 Mar 1972, 16 Apr 1970, 26 Apr 1972, 18 Sep 1969 and a ♀ (USNM 550751) collected at

Bahig, 24 Aug 1969; and one, unsexed (USNM 551565), obtained at Mersa Matruh, 30 Apr 1970) establish the occurrence and subspecies of Orphean Warblers migrating on both passages through Egypt. *S. h. crassirostris* breeds in southeastern Europe, the Middle East and Libya, and winters in the Sudan, Eritrea and Ethiopia (Vaurie 1959). The only previous specimen record in Egypt appears to be that of Heuglin (1869), who reported taking an adult ♀ in May (year not specified) on Geziret el Roda, near Cairo. An Orphean Warbler banded in Rome, Italy, 29 May 1935, was reported to have been recovered in the Siwa Oasis, 26 Sep 1935 (although this record was questioned by Mackintosh 1941).

Sylvia cantillans albistriata Subalpine Warbler

The eastern subspecies *S. c. albistriata* is usually cited as a textbook example of a loop-migrant (e.g. Mauersberger & Vietinghoff-Scheel 1967). Its presumed route is unique. In spring it is postulated to head east from its winter quarters in western Mali, Niger and Chad across the Sudan, where there are only a few records (Moreau 1972) then to turn north across Egypt to follow the Nile and onwards to its breeding range in the Balkans and Aegean islands (Moreau 1961). There are numerous spring records from Egypt (Horner 1980) and Cyprus (Flint & Stewart 1983) and even as far east as Israel. In autumn, Subalpine Warblers are thought to fly directly from the breeding grounds southwest across Libya to the wintering grounds without crossing Egypt at all. Meinertzhagen (1930) had no autumn records from Egypt. The PMS on the other hand recorded 48 birds at Bahig during autumns 1966, '68 and '69 (Watson 1971), 19 of which are preserved as study skins (USNM). Two 1966 specimens were previously reported by Hubbard & Seymour (1968) and 3 additional birds were recorded in autumn 1972. The Egyptian dates range from 31 Aug to 22 Sep, plus one straggler on 17 Oct 1966. It is clear that there is in fact a significant autumn passage of eastern Subalpine Warblers over Egypt, but presumably the majority pass without stopping to rest or feed on land. This situation contrasts with that of the Rüppell's Warbler *S. rueppelli*, which breeds in about the same area and winters at about the same latitude in Africa from Chad eastwards, but is commonly recorded on both passages in Egypt (Watson 1971). Misonne (1974) found Subalpine Warblers in the Gebel Uweinat region, near the Egyptian, Libyan and Sudanese borders, between 20 Oct 1968 and mid-Jan 1969. He noted their numbers to be unfluctuating and estimated that less than 300 individuals were wintering in the Gebel Uweinat area. Cowan (1982) recorded this species in west central Libya in Oct 1980 and on 7 occasions during Jan and mid Feb 1981. Although no Libyan specimens are known, these observations may be of eastern *albistriata* and if so represent a substantial extension of the known wintering grounds of this form.

Phylloscopus inornatus inornatus Yellow-browed Warbler

A ♂ (USNM 551636) obtained at Bahig, 22 Oct 1969, is the second known specimen from Egypt. It had an ossified skull and light fat deposits. The first, unsexed (USNM 533475), was collected at Bahig, 17 Oct 1966 (Hubbard & Seymour 1968). Sight records include birds in El Faiyum, 10 Nov 1909 and at Giza, 19 Apr 1912 (Nicoll 1919). The wintering grounds of this Asian species are usually considered to be from southern China, south to Afghanistan, and east to the Malay Peninsula (Vaurie 1959). However, it has been found at Serir, Libya , 20 Nov (Bundy 1976), wintering in Iran (Hjort 1971) and as far west as the British Isles (e.g. Allsopp & Hume 1981). The somewhat indistinct facial markings and the yellow wing-bars and superciliary stripes of the 2 museum specimens are characteristic of the northern subspecies *inornatus* rather than October specimens of the southern *humei* collected in India (Ali & Ripley 1973), but the differences between these forms in autumn plumage are not marked.

Passer luteus Golden Sparrow

Two adults (♂♂ by plumage, FMNH 107784 & 107785), collected at Wadi Akwamtra, 16 Feb 1964, and preserved in fluid are the first records in Egypt. The Golden Sparrow is resident in portions of the Sudan, west through southern Libya to west Africa (Simon 1965).

Carduelis chloris aurantiiventris Greenfinch

A ♂ (USNM 551928) taken at Bahig, 15 Mar 1970, had an ossified skull and heavy fat deposits. Another [♂] (sexed by plumage, USNM 548644) taken at Port Said (31° 16'N, 32° 18'E), 12 Nov 1966, weighed 21.8 gm. These are the first records of this southern European and northwestern African subspecies in Egypt; however, the Near Eastern form, *chlorotica,* which is distinctly paler, occasionally winters in the Nile Delta. *C. c. aurantiiventris* is thought to be mainly sedentary during winter, although it has been recorded in eastern Libya (Vaurie 1959).

Carpodacus erythrinus kubanensis (?) Common Rose Finch

Two ♂♂ (USNM 533478 & 551960) collected at Bahig, 22 May 1967 and 21 Oct 1969, had ossified and unossified skulls, and medium-heavy and medium fat deposits (respectively). One, unsexed (perhaps immature ♂ by plumage, USNM 550324) taken at Bahig, 7 Oct 1968, had an unossified skull and light fat deposits. The 22 May 1967 specimen was the first record in Africa or the Middle East (Hubbard & Seymour 1968). Subsequently, however, the species has been collected in Iraq (Georg 1969) and Israel (USNM 549447, 549448, 550409, 550410 & 550411). The characters used to differentiate the various subspecies are subtle and most reliable only in adult males. Compared with series of *erythrinus, kubanensis, ferghanensis,* and *roseatus* in similar plumages, the Egyptian material is closest to *kubanensis* (from Iran); but since no Egyptian specimen is in breeding plumage, our subspecific identification is tentative. The recent appearance of this species in Egypt and Israel may be related to breeding range expansion of *kubanensis* into western Asia Minor (Kumerloeve 1966a).

Emberiza rustica rustica Rustic Bunting

One, unsexed (perhaps immature ♂ by plumage, USNM 568990), collected at Bahig, 22 Oct 1971, had an unossified skull and no fat and was the first record for Egypt and, as far as we can determine, for the African continent. The Rustic Bunting breeds in the taiga of eastern Scandinavia and Siberia, and winters in China and Japan (Vaurie 1959). It is known to wander extensively during spring and autumn, and has been recorded in Iraq, 10 Feb 1962 (Marchant & Macnab 1962), at Eilat, Israel, 23 Oct and 11 Nov 1968 (USNM 550466 & 550467), in Turkey, 24 Feb (Kumerloeve 1966b), in British Columbia, Canada, 26 Oct 1971 (Crowell & Nehls 1972), on numerous occasions in the Aleutian Islands, Alaska (Gabrielson & Lincoln 1959) and widely in Europe (Vaurie 1959).

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A migration of (Eurasian) Nightjars *Caprimulgus (europaeus)* at Cape Guardafui, Somalia

by J. S. Ash & J. E. Miskell

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The Eurasian Nightjar *Caprimulgus europaeus* is surprisingly poorly known in Somalia, although 3 races have been recorded: *europaeus* and *plumipes* once each and *unwini* on 5 occasions. Including birds not subspecifically identified, there are still only 10 records from the country:—

C. e. europaeus.

"Coste Somalia italiana", October (year unknown) (Heuglin (1859), referred to in Moltoni (1936)). The locality is queried by Moltoni, possibly because he was unsure whether it referred to British or Italian Somaliland. Also, the subspecific identification of this bird is questionable, for although it is listed as *C. e. europaeus* by Moltoni, Heuglin's original record merely refers to *C. europaeus*.

C. e. plumipes.

Guardafui (11° 50′N, 51° 16′E), 5 October (year unknown) (Moreau 1972). We have not traced the original authority for this record, but suspect that it may refer to Lynes's record quoted below from Archer & Godman (1961), though in fact the dates are different. The specimen is not in the British Museum (BMNH) (P. R. Colston, 15.ii.82).

C. e. unwini.

1. Zeila (11° 21′N, 43° 28′E), ♀, 11 Nov. 1899 (Ogilvie-Grant 1901).
2. Belindula, nr. Galkayu (6° 50′N, 47° 30′E), ♂, 7 Sep. 1903 (Witherby & Hamerton 1905). This specimen was collected by Hamerton, and recorded by Moltoni (1936) as "non molto distante de Gallacaio". We have been unable to locate Belindula, and Moltoni is probably incorrect in stating that it is near Galkayu. This bird is recorded on the same date as from Behendula (10° 11′N, 45° 08′E) in Archer & Godman (1961), and we think that this is the correct record and the one to which Moltoni was referring.
3. Off Guardafui (11° 50′N, 51° 16′E), ♀, 6 Nov. 1907, collected by Lynes, one of 2 seen on board a ship (Archer & Godman 1961). This specimen is in the BMNH (1934.1.1.3232) (P. R. Colston, 15.ii.82).
4. Hargeisa (9° 32′N, 44° 03′E), 19 Sep. 1917 (Archer & Godman 1961).
5. Mogadishu (2° 03′N, 45° 21′E), 25 Oct. 1981, ♀ collected (J. S. Ash). The specimen is in the National Museum, Nairobi.

P. R. Colston (15.ii.82) has provided 2 further relevant records which, although not strictly belonging to Somalia, are of interest: a ♀ *C. e. unwini* was collected by Lynes on 3 Nov. 1931 50 miles off the southern Somalia coast at c. 1°N, 45°E—the specimen is in the BMNH (1932.5.10. 719); and south of Socotra at 10° 51′N, 53° 07′E, one *C. europaeus* came on board ship, almost certainly *unwini*, on 2 Nov. 1962 (P. R. Colston).

We can now add 3 more records from northeast Somalia, including an account of a large number of departing migrants. None, however, was handled and specific identification must remain presumptive for the migrating birds, although they were most likely to be *C. europaeus*.

At 9 km southeast of Alula at 11° 55′N, 50° 49′E, one *C.europaeus* was seen very well on the ground in a patch of thornbush containing many other migrants on 3 May 1980.

At Tohen (11° 44′N, 51° 15′E), 122 + were counted on the same day, 3 May 1980 (see below).

At Tohen, 2 *C. europaeus* were seen on 4 May 1980.

On 3 May it was a most stirring spectacle for the two of us to stand at that remote and barren site after weeks of rough travel, to find ourselves in the midst of a large migration of nightjars setting off over the sea at night, possibly on a major flyway. The observation was made from the top of a low escarpment above the village of Tohen, which is on the north side of the mouth of a wadi, 12 km south of Cape Guardafui. The wadi, immediately to the south of the observation point, runs east-west, and light from the Guardafui lighthouse was clearly visible to the north. At late dusk nightjars began to rise out of the wadi flying off north all round the observers. In the next 10 minutes 122 were counted, but this was an unknown fraction of the birds involved, as many other more distant uncounted shadowy shapes could be seen and the movement was still in progress when it became too dark to see them. With a compass it was determined that they were heading steadily on a 28° course (wind 170° c. Force 4 on the Beaufort scale, clear sky).

A search of the wadi at Tohen at dawn of the day following the migration revealed only 2 Eurasian Nightjars in the *Tamarix,* so possibly the birds seen the previous evening were drawn from a much larger area of scattered patches of thornbush to the south. On the following evening, travelling westwards along the north Somalia coast from Habo (11° 47′N, 50° 32′E) to Durbo (11° 37′N, 50° 19′E), a close watch was kept for nightjars passing over or through the fringing line of steep coastal hills, but none was seen, suggesting that the birds were concentrated at Cape Guardafui and that the area may be an important rendezvous for nightjars in both spring and autumn (for 2 of the earlier Somalia records were at Guardafui in autumn and a third at sea was not far off).

The birds on 3 May were presumably setting off on a crossing of the Gulf of Aden for the Arabian mainland, whose coast would be crossed at about Salah (16° 56′N, 53° 59′E) in southern Oman, 380 km distant, if this flight direction were maintained on a great circle course, bringing them over land well before dawn. This, of course, does not take into account any possible wind-drift factor. The prevailing half-tail wind presumably would increase their ground-speed considerably. If they rested in Oman through the following day, as they presumably had done in Somalia, a second leg on the same bearing could take them to Muscat (23° 37′N, 58° 36′E), on the southern shore of the Gulf of Oman, after a further 820 km flight over the desert. This point might be reached within a few hours after dawn, and again a day's rest could follow. A further flight on the same bearing and they would be at about the centre of the known breeding range of *unwini*.

We do not know if the birds fed in the wadi at Tohen, where there were freshwater pools and *Tamarix* thickets, but if they did it could not have been for long unless it had been during the day or near dawn or unless they had been there for more than 24 hours. Thus these birds may well have been embarking on a sea-passage of nearly 400 km, and an unknown distance beyond, on empty stomachs, though presumably with adequate lipid reserves for the journey. The question arises: where did they fatten-up before reaching Guardafui? A possible clue is provided by Moreau (1972) who refers to parties of migrant *C. europaeus* in Kenya in spring, and Britton (1980) who states that it is mainly known on passage in East Africa during Oct.-Nov. and Mar.-Apr., when most specimens from E. Tanzania are *unwini,* and at Ngulia in E. Kenya where about 30% of the migrants handled are pale *unwini* or *plumipes*. Nightjars can presumably feed whilst migrating at night, but little food would be available over the short distance of barren rock and sand between Tohen and Guardafui, and nothing at all over the sea. The next meal therefore probably lay at least 10 hours ahead over Arabia.

Meinertzhagen (1954) says of *unwini* that, although several specimens have been taken on ships off the coast in Oct. and Apr., it has never been taken on Peninsula Arabia. He adds that immense (*sic*) numbers congregate just before passage, which is at night, but unfortunately he gives no details. More recently Gallagher & Rogers (1980) mention it as a regular passage migrant in Dhofar, Oman, and record 2 in Sep., of which one was collected (*unwini,* BM 1977.21.14). Jennings (1981) lists *C. europaeus* as an uncommon migrant in all areas in Saudi Arabia. Thus the species is fairly common in East Africa, uncommon in Saudi Arabia, but regular in Dhofar (the presumed landfall of the birds leaving Guardafui in spring). Its previous apparent scarcity in Somalia is presumably due to it being overlooked, undoubtedly because possible areas of concentration have not been visited by ornithologists; but the chances of anyone being at Guardafui during the probably brief duration of nightjar migration are utterly remote, and the same must apply to much of the Arabian peninsula, so that they could be overlooked there too. The above data suggest a link for *C. e. unwini* between E. Tanzania, where this race is concentrated, Guardafui, Dhofar and its breeding range, all of which are on the same great circle.

The presumptive identification of the night-flying birds as *C. europaeus* rests on the certain identification of grounded birds in the area on the same and following day, together with the supporting evidence of the 3 earlier autumn records. Only the Plain-backed Nightjar *C. inornatus,* Nubian Nightjar *C. nubicus tamaricis,* and Egyptian Nightjar *C. aegyptius* are possible alternatives. All are unlikely in large numbers, whereas *europaeus* is known to congregate on migration; also *inornatus* is unknown in eastern Somalia and there is no evidence that it is a migrant in this part of its range, while *nubicus* is a distinctly smaller species and there has been only one occurrence of *aegyptius* in Somalia.

Acknowledgements. P. R. Colston very kindly provided new data and also checked specimens in the British Museum for us. Dr. J. F. Monk indicated further references and gave useful advice for which we are most grateful.

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Addresses. Dr. J. S. Ash, Division of Birds, National Museum of Natural History, Smithsonian Institution, Washington, D.C. 20560, U.S.A. J. E. Miskell, CADE, c/o UNHCR, P.O. Box 2925, Mogadishu, Somalia.

IN BRIEF

A Gon-gon *Pterodroma (mollis) feae* in Israel

In *Birds of the Western Palearctic* (1: 130) it is reported on the authority of Professor H. Mendelssohn that a species of Soft-plumaged Petrel was found dead on the west shore of the Dead Sea in February 1963. Since it is of interest to know whether it arrived there from the Atlantic via the Mediterranean or from the Southern Ocean via the Red Sea I enquired whether further details were available. I am grateful to Tsila Shariv for the information that it was found on 8 February and is preserved in the Department of Zoology at Tel Aviv University. The wing measures 260 mm, the tail 115 mm, the culmen 27 mm, the tarsus 33 mm and the overall length is 383 mm. This lies in the region of overlap of the southern form *Pterodroma mollis* and its larger representative in the North Atlantic *P. feae*; but it is reported to have a white breast without a pectoral band, which is more characteristic of *P. feae*. This suggests that it probably came from the North Atlantic via the Mediterranean, in contrast (for example) with a wasted Swinhoe's Storm-petrel *Oceanodroma monorhis* in the same collection found on the beach at Eilat on 13 January 1958, which must have come from the Indian Ocean (*Ibis* 109: 159, 110: 27).

This information came too late for inclusion in Bourne (1983) (*Bull. Brit. Orn. Cl.* 103: 52–58).

10 May 1983

W. R. P. Bourne,
Department of Zoology,
The University, Aberdeen.

Dunlin *Calidris alpina* in South America

Petersen *et al.* (1981) have published data on what they believed to be the first Dunlin *Calidris alpina* record for South America. They recorded a number of sightings in Peru during 1978 and 1979. While working on geographical variation of the Dunlin (Greenwood 1979) I examined a series of skins from the Copenhagen University Museum. Amongst these was an adult male taken on 15 January 1926 at Cayenne, French Guiana (4° 55′N, 52° 18′W) (Catalogue number 36.029).

Analysis of biometrics and ringing recoveries suggests clearly that Dunlin breeding in western Alaska (*C. a. pacifica*) remain solely on the Pacific coast during winter, whilst those breeding in arctic Canada (*C. a. hudsonia*) remain solely on the Atlantic and Gulf coasts (Greenwood 1979, Maclean & Holmes 1971). The specimen collected at Cayenne probably represents the first record of *C. a. hudsonia* for South America, and the sightings in Peru represent the first *C. a. pacifica* for South America.

Acknowledgement. I thank N. O. Preuss of Copenhagen University Museum for his help.

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Petersen, W. R., Donahue, P. K. & Atkins, N. 1981. First record of Dunlin (*Calidris alpina*) for Peru and continental South America. *American Birds* 35: 342–343.

12 May 1983

Julian G. Greenwood,
Science Dept., Stranmillis College,
Belfast BT9 5DY, N. Ireland

Didric Cuckoo *Chrysoccocyx caprius* in Cyprus—new to the Palaearctic.

During a visit to the western side of the Akrotiri peninsula, the most southerly point of Cyprus, on 27 June 1982, S. Mumford noted an unfamiliar species perched on telephone wires and brought it to the attention of M. G. Lobb and J. Veal. Detailed field notes and sketches were made and were submitted to I. H. J. Lyster at the Royal Scottish Museum, Edinburgh, P. R. Flint and R. R. Kersley, who were unanimously agreed that the bird was a Didric Cuckoo *Chrysoccocyx caprius*. In addition J. H. Elgood and Dr. Hilary Fry have confirmed the identification. Reference to the literature and to photographs of specimens at the Royal Scottish Museum indicated that the bird was an adult female.

Throughout the period it was under observation, the bird fed on caterpillars which it located from a perch before flying to the ground to collect and eat them, but occasionally it returned to a perch first before eating the prey.

Watched for some 20 minutes between 0745 and 0915 it was not seen again despite frequent subsequent visits to the area.

Normally of Afro-tropical distribution south of the Sahara from Senegal to Ethiopia, the species reaches Oman apparently as a breeding summer visitor to wooded areas. This is thought to be the first record for the Palaearctic region. There were no extreme weather factors prevailing at the time of the occurrence to account for this unusual sighting. Full details are given in the 1982 *Report of the Cyprus Ornithological Society (1957)*.

I wish to express my thanks to I. H. J. Lyster, P. R. Flint and R. R. Kersley for their assistance and the information with which they kindly provided me, and to Dr J. F. Monk for his assistance in preparing this note. In addition J. H. Elgood and Dr C. H. Fry have kindly confirmed the identification.

25 May 1983

M. G. Lobb,
14 Shackleton Close, St. Athan, Barry, S. Glamorgan, U.K.

Books Received

Parslow, John (Ed.). 1983. *Birdwatcher's Britain.* Pp. 256. Maps, line drawings, photographs. Stiff paperback. Pan/Ordnance Survey. £4.95 (£8.95 hardback).

Described accurately as a pocket guide to 50 birdwatching walks in the counties of England, Scotland and Wales devised by the Royal Society for the Protection of Birds, with useful information on maps, birdwatching and the law. The walks naturally do not expose any endangered breeding species, but include places where rare species can safely be seen at other times.

Wood, D. S., Zusi, R. L. & Jenkinson, Marion A. 1983. 1. *World Inventory of Avian Spirit Specimens. 1982.* Pp. 181. 1983. 2. *World Inventory of Avian Skeletal Specimens. 1982.* Pp. 224. Soft covers. 37 × 28 cm. Computer print out. American Ornithologists' Union and Oklahoma Biological Survey. Obtainable from Oklahoma Biol. Surv., Sutton Hall, University of Oklahoma, Norman, Oklahoma 73019, USA. $25.00 each incl. surface postage.

A notable and invaluable, painstaking service to the scientific community detailing the number of specimens of each bird species in each of 85 skeleton collections and 41 spirit collections worldwide. See also *Auk* (1982) 99: 740–757.

Thibault, J. -C. 1983. *Les Oiseaux de la Corse.* Pp. 255. Photographs, maps. Parc Naturel Regional de la Corse Administration. Obtainable from Redwing Books, 90a Sandgate Road, Folkestone CT20 2BE, U.K. Paperback. c. £12.00.

A careful and well illustrated introduction to Corsican geography and geology, vegetation zones, habitats and their avifauna, island forms and endemism, migration, specimen collections, besides a comprehensive, well-organised Systematic List which includes breeding distribution maps and some ringing recovery distributions. Important references are cited under each species, including taxonomic and nomenclatorial references for Corsican endemic species and subspecies.

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Papers, whether by Club Members or by non-members, should be sent to the Editor, Dr. J. F. Monk, The Glebe Cottage, Goring, Reading RG8 9AP, and are accepted on the understanding that they are offered solely for publication in the *Bulletin.* They should be typed on one side of the paper, with double-spacing and a wide margin, and submitted with *a duplicate copy on airmail paper.*

Scientific nomenclature and the style and lay-out of papers and of References should conform with usage in this or recent issues of the *Bulletin,* unless a departure is explained and justified; but informants of unpublished observations (usually given as *in litt.* or pers. comm.) should be cited by initials and name only, e.g. ". . . catches wasps (B. Eater)", but "B.B.C. Gull informs me that . . .". Photographic illustrations, although welcome, can only be accepted if the contributor is willing to pay for their reproduction.

An author wishing to introduce a new name or describe a new form should append *nom., gen., sp.* or *subsp. nov.,* as appropriate, and set out the supporting evidence under the headings "Description", "Distribution", "Type", "Measurements of Type" and "Material examined", plus any others needed.

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CORRESPONDENCE

Correspondence about Club meetings and other matters not mentioned above should go to the Hon. Secretary, R. E. F. Peal, 2 Chestnut Lane, Sevenoaks, Kent TN13 3AR.

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British Ornithologists' Club

Edited by

Dr. J. F. MONK

Volume 103 No. 4 December 1983

FORTHCOMING MEETINGS

Tuesday, 10 January 1984 at **6.15 p.m.** for **6.45 p.m.** in the Senior Common Room, South Side, Imperial College, Prince's Gardens, S.W.7, **Mr M. K. Swales** will speak on the notable **Denstone College Expedition to Inaccessible Island** (Tristan da Cunha group) in 1982-1983, with an introduction by Sir Hugh Elliott, sometime administrator of Tristan da Cunha, who has himself visited Inaccessible Island 4 times. Those wishing to attend should send their acceptance with a cheque for £6.40 a person to reach the Hon. Secretary at 2 Chestnut Lane, Sevenoaks, Kent TN13 3AR (telephone Sevenoaks [0732] 450313) not later than first post on Thursday, 5 January.

Tuesday, 6 March 1984 at 6.30 p.m. for 7 p.m., at the same venue, **Mr P. F. Belman** will speak on the **Greenland White-fronted Goose** in an address covering recent work by the Greenland White-fronted Goose Study in the breeding season in Greenland and in winter in Great Britain and Ireland. Those wishing to attend should send their acceptance with a cheque for £6.60 a person to reach the Hon. Secretary (address above) not later than first post on Thursday, 1 March.

Tuesday, 22 May 1984 at 6.20 p.m. for 7 p.m., at the same venue. **Mr Peter Hayman,** the well known artist and illustrator, will speak on **Raptors and Identification Techniques.** There will be a hot buffet supper and those wishing to attend should send their acceptance with a cheque for £4.80 a person to reach the Hon. Secretary not later than first post on Thursday, 17 May.

Tuesday, 3 July 1984 Dr Andrew Richford will speak on **Black Vultures in Majorca.**

September 1984 Speaker to be arranged.

November 1984 Dr Clive Catchpole will speak on **Evolution of Bird Song.**

Tuesday, 11 December 1984 Dr Ian Newton will speak on **Recent Studies of Sparrowhawks.**

COMMITTEE

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Dr. J. F. Monk (*Editor*)
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R. A. N. Croucher
D. Griffin

Bulletin of the
BRITISH ORNITHOLOGISTS' CLUB

Vol. 103 No. 4 Published: 20 December 1983

The seven hundred and forty-ninth Meeting of the Club was held in the Senior Common Room, South Side, Imperial College, London, S.W.7, on Tuesday, 20 September 1983 at 7 p.m. The attendance was 19 Members and 5 guests.

Members present were: B. GRAY (*Chairman*), P. J. BELMAN, K. F. BETTON, Mrs DIANA BRADLEY, D. R. CALDER, P. J. CONDER, R. A. N. CROUCHER, D. J. FISHER, A. GIBBS, D. GRIFFIN, R. H. KETTLE, J. KING, Revd. G. K. McCULLOCH, Dr. J. F. MONK, R. E. F. PEAL, GEORGE A. SMITH, Jr., S. A. H. STATHAM, J. PAUL STEVENS and N. H. F. STONE. Guests present were: D. BRADLEY, Mrs ISABEL McCULLOCH, K. McKENZIE, Dr. MARGARET SPITTLE, and Mrs. VALERIE STEVENS.

Mr. George A. Smith, Jr., gave a stimulating address on Convergence and Radiation in Parrots; a resume of it will be published in the *Bulletin*.

ANNUAL GENERAL MEETING

The 1984 Annual General Meeting of the British Ornithologists' Club will be held in the Senior Common Room, South Side, Imperial College, Prince's Gardens, London, S.W.7 at 6 p.m. on Tuesday, 22 May 1984.

AGENDA

1. Minutes of the last Annual General Meeting (see *Bull.Brit. Orn. Cl.* 103:33).
2. Report of the Committee and Accounts for 1983.
3. The *Bulletin*.
4. Election of Officers.
   The Committee proposes that:—
   (a) Mrs D. M. Bradley be re-elected Honorary Treasurer.
   (b) Mr R. E. F. Peal be re-elected Honorary Secretary.
   (c) Mr D. R. Calder be elected a member of the Committee *vice* Mr R. A. N. Croucher, who retires by rotation.
5. To consider and, if thought fit, to pass the following resolution, which will be proposed by the Committee as a special resolution in terms of Rule (14):-

That Rule (1) be amended by the deletion in the first sentence of the words **one further term** and the substitution in place thereof of the words **additional terms**.

(The relevant passage in Rule (1) would then read "an Editor of the Bulletin to be elected for five years, and who shall be eligible for re-election for additional terms".)

6. Any other business of which notice shall have been given in accordance with Rule (7) to the Hon. Secretary prior to 28 February 1984.

By Order of the Committee, RONALD E. F. PEAL
Honorary Secretary.

Brown-breasted Flycatcher *Muscicapa muttui* in Thailand

by D. R. Wells

Received 25 January 1983

In Southeast Asia, south and west of the Chinese border, the Brown-breasted Flycatcher *Muscicapa muttui*, a montane forest species, has been recorded only at Black Rock, Ngawchang valley and in Bhamo district, northern Burma (BMNH; Harington 1909), in central Burma (Smythies 1953) and in the southern Shan States, eastern Burma, where Rippon (1901) found it "common" above 1500 m. Three adults from Doi Inthanon peak in the Thanon Thong Chai range (SE of Rippon's collecting area), recently identified in the collections of the Royal Thai Forestry Department and Thailand Institute for Scientific and Technological Research, Bangkok, carry it over the Shan frontier into NW Thailand and provide the first confirmed Thai occurrences (cf. Dickinson 1963, Wells 1977 postscript). They are a male (RTFD 1221) dated 1 April 1969 from Dong Tak-tin, elevation 1400 m (i.e. within the evergreen forest altitudinal zone of Doi Inthanon) and 2 unsexed birds (TISTR 53-2953, 53-2954) dated 28 May 1970.

All populations of *M. muttui* in the known Sino-Himalayan range are likely to be to some extent migratory, but nowhere has this yet been shown directly, and the long-distance migrants of this species that winter in SW India and Sri Lanka (Ali & Ripley 1972) are from unknown breeding areas. Available Burmese (including South Shan) dates fall between 23 March and 13 April but are too few to be interpreted safely as evidence of spring passage status. For lack of information on *M. muttui* generally, therefore, its status in Thailand must also be treated as uncertain, even though 28 May is past the general peak of nesting by insectivorous passerines in the mountains of NW Thailand (Round 1982) and specimens have been collected in Szechuan, near the northern limit of the species' range, from half a month earlier (BMNH).

Nine specimens (BMNH, U.S. Natn. Mus.) from Manipur, Burma and west-central Szechuan ('*stotzneri*') are in close agreement with Thai material on plumage and soft-part coloration, wing, tail and tarsal measurements, the shortfall of full-grown primaries behind the tip of the closed wing, and the shape and size of the bill. They differ from 10 Assamese and Sikkim birds in being more olive and less rufous brown, especially on the upper tail-coverts and margins of the secondaries and secondary coverts. However, these differences could be season- or age-related as all of the Assamese and Sikkim specimens were collected in autumn. SW Indian and Sri Lankan winter migrants dated mid-October to mid-March (BMNH) span the full range of colour variation.

Acknowledgements. I would like to thank Dr. A. W. Diamond and Mr. B. E. Smythies for their help with literature not available in Malaysia and the latter for useful additional comments on the Burmese records of *muttui*.

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Address. D. R. Wells, Zoology Department, University of Malaya, Kuala Lumpur 22–11, Malaysia.

Handedness in crossbills *Loxia* and the Akepa *Loxops coccinea*

by Alan G. Knox

Received 6 January 1983

Although the 4 species of crossbills *Loxia* are typical Cardueline finches in many aspects of their biology, they have become uniquely specialised to feed efficiently on the seeds of coniferous trees. Many other birds in the northern forests also eat conifer seeds, but only crossbills and some woodpeckers and corvids are able to extract them with ease from closed cones, and only the crossbills rely on conifer seeds to provide the main part of their diet throughout the whole year. The principal adaptation in *Loxia* is the feature from which the birds get their English name—the crossed bill. The horny sheaths on both upper and lower mandibles are elongated and curved, with the tips crossing. The maxillary (upper) sheath shows only slight lateral curvature; most of the sideways component of bill crossing is a result of the shape of the lower elements. The bones of the skull exhibit less dramatic, but still obvious signs of asymmetry with both the maxilla and the mandible deviating from the sagittal plane (*contra* Christy 1914). The muscles of the neck and jaw, some of the sites of their attachment and the jaw articulation are also asymmetric; they were described as long ago as 1799 by Townson and, in more detail, by Duerst (1909). There is a dimorphism in the direction of bill crossing, the lower mandible crossing to the left of the upper in some ('left-billed') birds and to the right in others ('right-billed'). The ratio in large samples is roughly even, and is not sexually biased. The bill is straight in nestlings and only starts to cross after fledging.

Because of this dimorphism and following the observations on handedness by McNeil *et al.* (1971) and others, it was decided to investigate one aspect of handedness, namely tarsal length, in 2 species of crossbill and in one of the Hawaiian honeycreepers, the Akepa *Loxops coccinea,* which has a bilateral asymmetry of the bill and jaw musculature, much as in the crossbills, although less well developed (Richards & Bock 1973).

Methods

The lengths of both tarsi were measured on samples of skins in the British Museum (Natural History) (BMNH) and the Royal Scottish Museum (RSM). For the crossbills, *Loxia curvirostra curvirostra* and *L. pytyopsittacus,* the samples were made up of equal numbers of right- and left-billed birds. There were only 27 skins of *Loxops coccinea coccinea* at the BMNH. These comprised 13 left- and 14 right-billed specimens; but several had damaged legs and only 11 left- and 9 right-billed birds could be measured, so all were used in the analysis. The statistical significance of the difference between right and left tarsal lengths was assessed separately for right- and left-billed birds of each species using a modified paired t-test. The sample variance of differences was calculated for the right- and for the left-billed birds of a species, and then pooled by taking an average of the sample variances weighted for their degrees of freedom. The mean difference for each group was then tested to assess whether it differed significantly from zero.

Results

In all 6 groups the tarsus was on average shorter on the side of the bird to which the lower mandible crossed (Table 1). The difference was statistically significant at the 5% level or better in 5 of the 6 samples, but in the sixth group (of right-billed *coccinea*) the significance was weaker (12.8%). In 9 of the 64 birds measured (2 *curvirostra,* 3 *pytyopsittacus* and 4 *coccinea*) there were no measurable differences in the tarsal lengths, and in 4 cases (1 *curvirostra,* 1 *pytyopsittacus* and 2 *coccinea*) the tarsus was longer on the side to which the lower mandible crossed. The average difference was less for *coccinea* than for either crossbill species.

TABLE 1

Tarsal lengths (mm) from skins of A) *Loxia curvirostra curvirostra,* B) *L. pytyopsittacus,* C) *Loxops coccinea coccinea.* Difference given is length of left tarsus minus length of right tarsus.

	Lower mandible crossing to:					
	LEFT			RIGHT		
	Length of mandibles			Length of mandibles		
	Left	*Right*	Difference	*Left*	*Right*	Difference
A	17.8	18.0	−0.2	19.0	17.4	+1.6
Loxia c. curvirostra	16.6	17.1	−0.5	17.1	17.3	−0.2
	16.9	17.2	−0.3	16.6	16.6	0.0
	16.9	17.1	−0.2	17.0	16.7	+0.3
	17.0	17.3	−0.3	18.3	18.2	+0.1
	16.9	17.1	−0.2	17.5	17.3	+0.2
	17.4	17.6	−0.2	16.4	16.3	+0.1
	17.4	17.7	−0.3	17.1	16.9	+0.2
	17.7	17.7	0.0	17.5	16.7	+0.8
	16.5	17.5	−1.0	17.0	16.8	+0.2
	17.1	17.3	−0.2	18.6	17.5	+1.1
	16.7	16.9	−0.2	16.3	16.2	+0.1
			Mean −0.300			Mean +0.375
	t value −2.540 Significance level 1.9%			t value +3.175 Significance level 0.4%		
B	17.4	17.8	−0.4	19.1	18.7	+0.4
L. pytyopsittacus	17.3	17.6	−0.3	18.0	18.0	0.0
	18.9	19.1	−0.2	17.8	17.8	0.0
	17.9	18.3	−0.4	19.2	18.9	+0.3
	17.9	18.0	−0.1	19.4	18.6	+0.8
	18.8	19.0	−0.2	18.9	18.4	+0.5
	18.3	19.0	−0.7	19.9	19.4	+0.5
	18.7	18.8	−0.1	18.7	18.6	+0.1
	18.9	19.1	−0.2	18.4	18.0	+0.4
	18.7	18.3	+0.4	18.0	18.0	0.0
			Mean −0.220			Mean +0.300
	t value −2.516 Significance level 2.2%			t value +3.431 Significance level 0.3%		
C	19.4	19.5	−0.1	20.1	20.0	+0.1
Loxops coccinea coccinea	20.3	20.4	−0.1	19.9	19.9	0.0
	18.9	19.3	−0.4	19.7	19.6	+0.1
	19.9	20.5	−0.6	21.0	20.9	+0.1
	21.0	21.3	−0.3	19.9	19.9	0.0
	20.2	20.1	+0.1	19.3	19.1	+0.2
	19.5	19.6	−0.1	19.8	19.8	0.0
	20.2	20.4	−0.2	20.9	20.9	0.0
	19.6	19.9	−0.3	20.5	20.1	+0.4
	19.8	19.6	+0.2			
	20.0	20.2	−0.2			
			Mean −0.182			Mean +0.100
	t value −3.207 Significance level 0.5%			t value +1.596 Significance level 12.8%		

Discussion

The technique used by adult crossbills to extract seeds from cones has been described with varying degrees of accuracy by numerous authors, including Townson (1799), Robbins (1932) and Tordoff (1954). The main method is here described for a left-billed bird (the lateral directions are reversed for a right-billed individual). The crossbill removes a cone from the tree by gripping it at the base in its bill and twisting. It does not ‘cut’ or 'snip' off the cone as suggested by some authors. The cone, still held in the bill by the stump, is carried to a convenient branch and held against the perch by the feet. It is orientated approximately parallel to the branch, with the apex of the cone pointing to the left and slightly away from the bird. The base of the cone is clamped firmly against the perch by the right foot and the tip is steadied by one or more claws on the left foot. The bird partly opens its bill, brings the tips together, and inserts them under a cone scale on the side of the cone away from the bird. The lower jaw is pulled to the left by the powerful muscles on that side of the head (Fig 1.), and at the same time the whole head is rotated. These actions lift the scale and the bird extracts the seed with its long tongue. The seed-wing is then discarded and the seed husked before being swallowed. To facilitate the lateral movement of the lower mandible, the articulation on the side to which it crosses is permitted considerable fore and aft movement, whereas the other side is not. This is in agreement with Townson (1799) and Huber (1933, Fig. 5) but is incorrectly illustrated by Pedersen (1976, Fig. 2D).

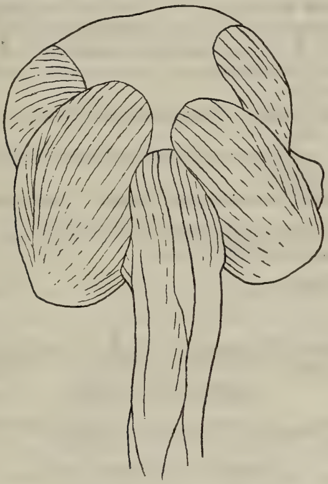

Figure 1 Rear view of the skinned head of a left-billed, adult ♂ *L oxia scotica.* Note the greater size of muscles on the left side. (Drawn from a photograph by P. J. K. Burton.

Because of the way the bird holds the cone, most of the strain is taken by the foot on the opposite side to that to which the lower mandible crosses. Therefore a left-billed bird is "right-handed", and has a correspondingly longer tarsus on that side. The adult crossbill has no choice in whether it is left- or right-handed, since this is dictated by the form of the bill. What determines the direction of bill-crossing is not known, nor is it known whether young birds exhibit handedness before the bill starts to cross.

Despite having slightly longer legs than in crossbills (yet being a considerably smaller bird), the tarsal asymmetry in the Akepa is less marked than in the crossbills, and the extent of bill crossing is much less extreme. The Akepa has a quite different diet from the crossbills, feeding mainly on insects extracted from leaf buds and seed pods, which it opens with twisting movements of the head and bill. The precise feeding techniques are poorly known, although probable methods have been described in detail by Richards & Bock (1973). From the observations on handedness reported here, it seems likely that, like the crossbills, the Akepa also consistently places more strain on one or other foot, depending on the direction of bill-crossing.

Acknowledgements. I am grateful to S. T. Buckland, Department of Statistics, Aberdeen University, for the statistical work embodied in this paper, to S. T. Buckland, I. C. J. Galbraith, C. J. O. Harrison and D. W. Snow for comments on a draft of the paper and to P. J. K. Burton for drawing the Figure.

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Notes on a Grey Kestrel *Falco ardosiaceus* brood in central Mali

by R. Trevor Wilson & Mary P. Wilson

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Brown *et al.* (1982: 453) state that the breeding habits of the Grey Kestrel *F. ardosiaceus* are "very well known" but that details of chick development are not described nor the fledging period known. The following details were obtained from a brood in a Hamerkop's *Scopus umbretta* nest at Niono, Mali (14°15′N, 05°55′W). All recent records of Grey Kestrel breeding are from Hamerkop nests and Brown *et al.* maintain that the Kestrel is dependent on the latter species.

Two kestrel eggs were found in a typical Hamerkop nest on 13 April 1981 and 2 more were present on 19 April. Four is the usual clutch size. Colour and shape were in agreement with published records but one of the first 2 eggs was only slightly blotched at the broader end. The eggs measured (mm): 42.1 x 32.8, 44.1 x 32.0, 41.9 x 33.0 and 42.1 x 32.8 (av. 42.5 x 32.6) and weighed (g) 25.6, 25.1, 24.6 and 24.7 respectively, in all cases probably after 2 or 3 days of incubation. Breeding in April would be expected—Brown *et al.* give April for Nigeria, Sudan and Uganda.

The first egg hatched on 13 May, followed by the others on 15, 16 and 17 May and incubation probably therefore started with the first egg. Brown *et al.* state that incubation "does not begin with the first egg" (p. 454) but later say that hatching "occurs over several days in some cases, which suggests incubation may begin before clutch complete". The maximum incubation period for the 3rd and 4th eggs would be 32 and the minimum 29 days ("at least 26, less than 31, days (A. Root in press)" in Brown *et al.*).

TABLE 1

Weights (g) and measurements (mm) of the culmen (Cn) and tarsus (Ts) of four nestling *Falco ardosiaceus* in Mali

	Chicks											
		1			2			3			4	
Day	Wt	Cn	Ts	Wt	Cn	Ts	Wt	Cn	Ts	Wt	Cn	Ts
Birth	16.3	7.1	11.8	16.5	7.2	14.4	16.4	7.4	13.0	17.2		
1				18.9			20.8					
2	24.8			25.2						24.2	7.7	14.8
3	33.6	8.2	18.0				32.8	8.2	15.5			
4	44.8			38.4	8.8	18.0						
5										34.4		
6	63.5	8.9	22.1				42.5					
7				53.2								
8										75.7	11.2	21.2
9	76.4						90.8	11.8	18.2			
10				87.2	12.1	31.2						
11										124.5		
12	129.9	12.0	36.2				145.0					
13				157.8								
15	171.2											

Table 1 gives mensural data of the developing chicks. Visits were made to the nest on 13, 15, 16, 17, 19, 22, 25 and 28 May. Primary quills appeared on day 9, by which time the irises were brown and the legs turning yellow. Rectrices appeared on day 12, when the bill had assumed a slaty colour. The egg-notch disappeared at about day 12.

All the young birds were found dead, in good condition, in the nest on 31 May 1981, possibly from heat stroke. Assuming death occurred at the mid-point between this and the previous visit, ages at death would be 16, 14, 13 and 12 days for the individual chicks.

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Food of the Black-headed Bee-eater *Merops breweri*

by C. H. Fry and D. J. Gilbert

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New information on breeding of the little-known African forest bee-eater *Merops* (*Bombylonax*) *breweri* demonstrates that its nesting habits are very like those of its congeners (Dyer, Fry & Hendrick 1982, Maes & Louette 1983).

Dyer *et al.* reported briefly also on its diet; here we supplement their information with an analysis of 600 ml of nest litter and show that the diet also is like those of other bee-eaters (Fry 1983).

Nest litter was collected by J. A. Hendrick soon after the young had fledged from 2 nests a few metres apart at Elubi (07°35′N, 07°26′E), Nigeria, in 1982. It consisted of mixed soil and insect sclerites, the latter from crushed pellets regurgitated by nestlings, though doubtless some pellets would have been from brooding adults. A few insect heads which appeared undigested may have been from decomposed insects discarded entire (which are prey but not, strictly, food). Identifiable sclerites, mainly head capsules, jaws and wings, were isolated by hand sorting and microscopic inspection of litter. Litter from the 2 nests was sorted separately, but the 2 were very similar and the results have been combined.

Of 561 prey items, the percentages (by numbers, not weight) contributed by 6 insect Orders are given in Table 1. Hymenoptera comprise half of the food. Besides honeybees *Apis mellifera* there are about 40 species, including:– bees, probably *Xylocopa, Megachile* and *Sphecodes*; wasps (Vespidae, Sphecidae), *Chlorion maxillosum, Ropalidia, Eumenes, Belanogaster, Synagris* and *Philanthus*; ants (Formicidae), *Paltothyreus tarsatus* ♀, *Oecophylla* and *Odontomachus*; and chrysidids, scolioids and ichneumons. Beetles (Coleoptera) of 9 families comprise 42% of the diet (also numerically). Scarabaeidae greatly predominate, with the chafer *Plaesiorrhina recurva* forming 15% of the entire insect sample, chafers of over 20 other species (some possibly of *Poecilophora* and *Porphyronota*) forming 20%, and the dung-beetle *Onthophagus tridens* 4%.

TABLE 1

Proportions of insects in diet of *Merops breweri*

	n	%		n	%
ODONATA	5	1	HYMENOPTERA		
			Apis mellifera	42	7
ORTHOPTERA	18	3	other bees	107	19
			Vespidae	49	9
LEPIDOPTERA	1	t	Sphecidae	22	4
			Formicidae	34	6
HEMIPTERA	20	4	others	29	5
COLEOPTERA	234	42		283	50

The Hemiptera include several cicadas, and cicadas featured importantly among insects which C.H.F. observed adult bee-eaters carrying into the same 2 nest burrows in 1981. In that year numerous hawk-moths (Sphingidae) were also fed to nestlings, including *Cephanodes hylas* and *Nephele comma* (Plate 1). The absence of hawk-moths, and dearth of Lepidoptera in general, in the 1982 nest litter is not easy to explain.

A single adult *M. breweri* netted at Elubi on 26 March 1981 weighed 54 g, and on the same date 3 nestlings estimated to be 10-15 days old weighed 34-43 g. The species is evidently about the same weight as the Carmine Bee-eater *M. nubicus,* but *M. breweri* may take even larger prey than does *M. nubicus* (Fry in press). From photographs in 1981 and 1982, we estimate that hawk-moths carried into nest holes by adults were 32-40 mm long; cicadas, dragonflies, wasps, probable carpenter-bees *Xylocopa* and some other insects

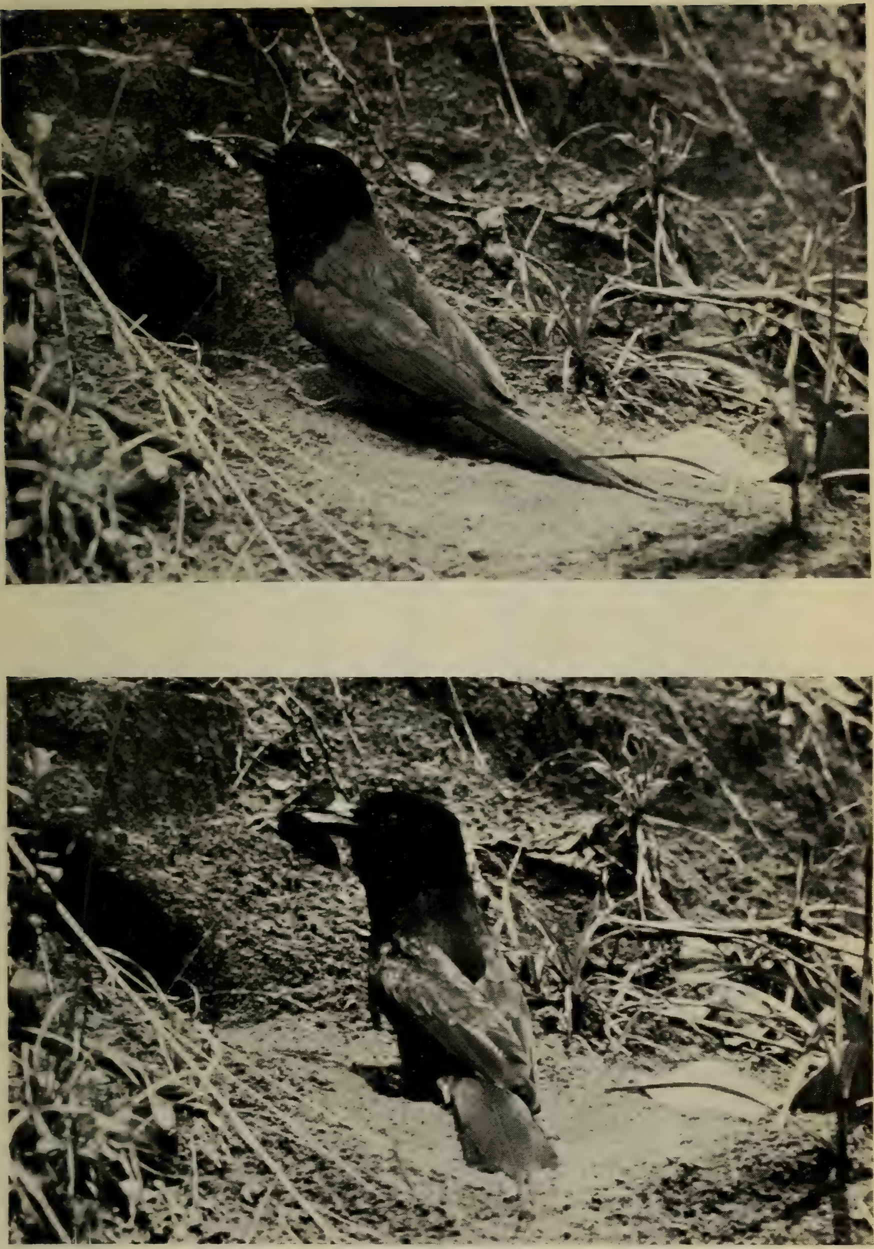

Plate 1. Adult *Merops breweri* at nest entrance with hawk-moths *Cephanodes hylas* (above) and *Nephele comma* (below) (Nigeria 1981). [See Fry & Gilbert].

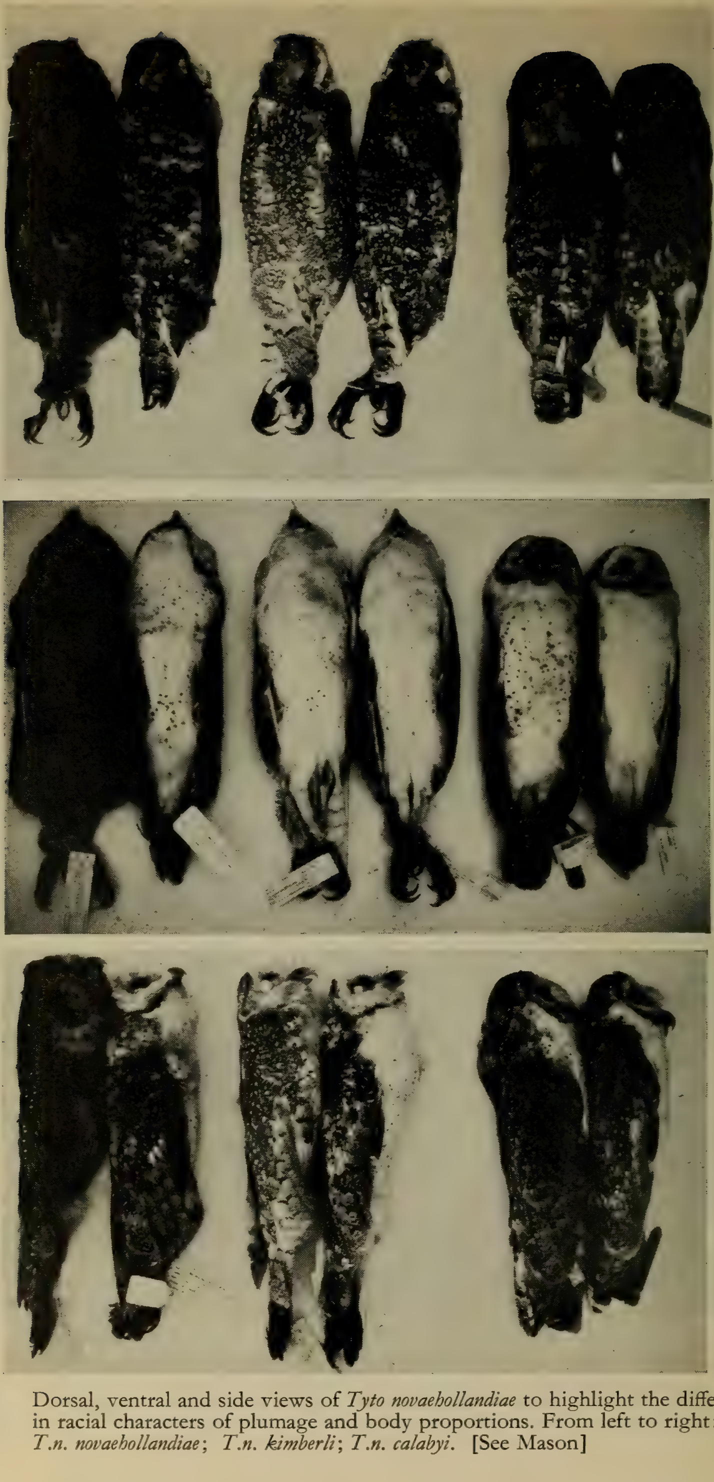

Plate 2 Dorsal, ventral and side views of *Tyto novaehollandiae* to highlight the differences in racial characters of plumage and body proportions. From left to right: *T.n. novaehollandiae*; *T.n. kimberli*; *T.n. calabyi*. [See Mason]

in the nest litter were very large, and one of the *Chlorion maxillosum* head capsules is larger than all but one in the collection of some 500 specimens in the British Museum (Natural History).

Acknowledgements. We are grateful to Mr. J. A. Hendrick for obtaining the nest litter, to Messrs. M. E. Bacchus, B. Bolton, G. R. Else and C. R. Vardy of the British Museum (Natural History) for determinations of some insects, and to Dr. L. A. Mound and Mr. A. Lucas for other assistance.

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A new subspecies of Masked Owl *Tyto novaehollandiae* (Stephens) from southern New Guinea

by I. J. Mason

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While analyzing subspecific variation in *Tyto novaehollandiae* (Stephens) (Schodde & Mason 1980), it appeared to me that specimens from southern New Guinea (Merauke-Fly River District) were of an undescribed form. Previous authors (Rand 1942, Mayr 1941, Mees 1964, 1982, Rand & Gilliard 1967) seem to have had mixed feelings about the subspecific status of this population, not surprisingly, as the intensity of tones and patterns of plumage in this species varies geographically, in keeping with the different climatic regimes that these owls inhabit (see Schodde & Mason 1980: 70-77). Consequently, plumage characters alone may be somewhat misleading in assessments of the subspecific limits and possible relationships of *Tyto novaehollandiae*.

The scattered northern island populations—*T.n. melvillensis* Mathews (Melville and Bathurst Islands), No. 5 in Fig. 1, *T.n. sorocula* (P. L. Slater) (Tanimbar),No. 7, *T.n. cayelii* (Hartert) (Buru), No. 6, *T.n. manusi* Rothschild & Hartert (Manus)), No. 9 and those from southern New Guinea (8)—have the same dark dorsal plumage as each other. Likewise, the general plumage tones and patterns of nominate *novaehollandiae* (2) from eastern and southern Australia are comparable with those birds from southern New Guinea. Interposed between the southern New Guinea and eastern Australia populations, however, is an out-of-sequence light (white) to medium phase form, *T.n. kimberli* (Mathews) (4) from northern Australia, whose characteristics may have been acquired in adaptation to the drier tropical woodlands it inhabits today (Schodde & Mason 1980, Mees 1982).

Other characters, therefore, needed to be evaluated in conjunction with plumage to determine the status of these forms. It was observed that specimens from southern New Guinea exhibited a mixture of pale and dark

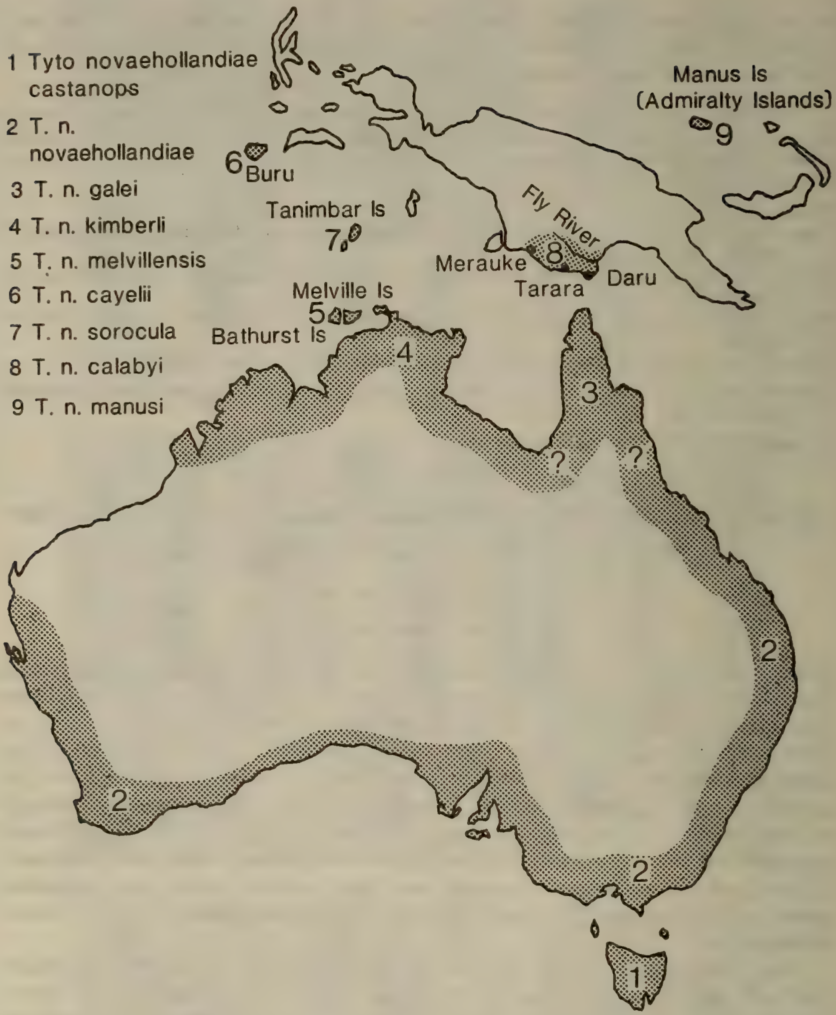
1 Tyto novaehollandiae castanops
2 T. n. novaehollandiae
3 T. n. galei
4 T. n. kimberli
5 T. n. melvillensis
6 T. n. cayelii
7 T. n. sorocula
8 T. n. calabyi
9 T. n. manusi
Manus Is (Admiralty Islands)
6 Buru
Tanimbar Is
7
Fly River
8
Merauke
Tarara
Daru
Melville Is
5
Bathurst Is
4
3
?
?
2
2
2
1
9

Figure 1 Distribution of the races of *Tyto novaehollandiae.*

plumage traits and variable measurements, characters that may have been derived either directly from both southern and northern forms nearby, or independently by convergence (see diagnosis of new subspecies). As it is, one might have expected Masked Owls from southern New Guinea (8) to have characters in common with those of Cape York Peninsula (3) due to their comparable tropical habitat and close proximity, as well as to the past geographical connections between the vertebrate faunas of these 2 land masses (see Schodde & Calaby 1972, Kikkawa *et al.* 1981). It was also to be expected that plumage characters, in the past, might have masked these relationships.

From the current revision it also became apparent that the only similarity between Cape York Peninsula (3) and northwestern Australian populations (4) is in their pale plumage and the reduced feathering on the lower tarsus. The Cape York population is in fact consistently smaller in wing and tail, and proportionally larger in culmen and tarsus (Table 1), so that when its geographical location and similarity to neighbouring (north and west) populations are taken into account these Cape York birds appear to hold clues to past links between the populations of Masked Owls within these regions. Because of the above differences the trinomial *T.n. galei* should be reinstated for those populations inhabiting Cape York Peninsula (*pace* Schodde & Mason 1980: 77).

Table 1. Body measurements (mm) of *Tyto novaehollandiae*. Measurements in brackets are means; 3(–2), for example, signifies that there are 3 wing measurements and 2 birds with an incomplete set of body measurements.

Localities	Sample No.	Wing	Tail	Culmen (from cere)	Tarsus
♀♀					
Melville/Bathurst Is.	3(–2)	295–308(301.3)	130	24	64
Northern Australia	7	313–332(320.7)	133–144(136.8)	24–26.3(24.9)	67–73.3(70.9)
Cape York Peninsula	2	299–306(302 5)	126–135(130.5)	23.2–24.4(23.8)	71.5–76(73.8)
Southern New Guinea	2	317–328(322.5)	127–137(132)	25.5–27.9(26.7)	71.5–74(72.5)
Southern Queensland	12(–2)	317–339(323.0)	130–145(138.0)	24.0–25.8(24.6)	63.7–69.7(66.4)
New South Wales	10	328–344(334.1)	138–150(143.4)	24.4–26.1(25.4)	62.4–75.5(68.3)
Victoria	4(–2)	333–352(342.3)	142–152(145.7)	23.3–25(24.1)	
Tasmania	5	347–368(359.2)	150–172(163.8)	24.8–27.3(25.9)	66–80(76.4)
♂♂					
Melville/Bathurst Is.	1	280	120	21.3	60
Northern Australia	4	293–305(299.3)	123–132(128.8)	21.0–24.0(22.7)	
Cape York Peninsula	3(–2)	280–283(281.3)	119	22.5	68.5
Southern New Guinea	3(–2)	305–308(306.0)	126–127(126.5)	24.0–25.4(24.7)	66–68.5(67.3)
Southern Queensland	6(–2)	295–308(300.6)	122–128(125.8)	22.7–23.0(22.8)	60.2–62.4(61.2)
New South Wales	9	285–318(302.6)	121–143(130.4)	21.4–23.8(22.5)	59.9–67(63.7)
Victoria	1(–1)	308			
Tasmania	10	310–338(328.5)	140–163(148.4)	21.9–24.5(23.2)	64–72(66.4)

Localities	Tail/ Wing	Tarsus/ Tail	Tarsus/ Wing	Culmen/ Tarsus	Culmen/ Wing	Culmen/ Tail
♀♀						
Melville/Bathurst Is	.44	.49	.22	.38	.08	.18
Northern Australia	.42–.45(.43)	.49–.53(.51)	.21–.23(.22)	.34–.38(.35)	.08	.18–.19(.18)
Cape York Peninsula	.42–.44(.43)	.56–.57(.57)	.24–.25(.25)	.31–.34(33)	08	.17–.19(.18)
Southern New Guinea	.40–.42(.41)	.54–.56(.55)	.22–.23(.23)	36– 38(.37)	.08–.09(.09)	.20
Southern Queensland	.40–.45(.43)	.45–.52(.48)	.20–.21(.21)	.35–.40(.37)	.07–.08(.08)	.17–.19(.18)
New South Wales	.42–.45(.43)	.44–.54(.48)	.19–.23(.21)	.33–.40(.38)	.07–.08(.08)	.17–.19(.18)
Victoria	.43				.07	.15–.18(.17)
Tasmania	.43–.48(.46)	.44–.49(.47)	.19–.22(.21)	.33–.38(.34)	.07–.08(.07)	.15–.17(.16)
♂♂						
Melville/Bathurst Is.	.43	.50	.22	.36	.08	.18
Northern Australia	.41–.45(.43)				.07–.08(.08)	.16–.18(.17)
Cape York Peninsula	.42	.58	.24	.36	.08	.19
Southern New Guinea	.41	.52–.54(.53)	.21–.22(.22)	.35–.38(.37)	.08	.19–.20(.20)
Southern Queensland	.41–.43(.42)	.48–.50(.49)	.19–.21(20)	.36–.38(.37)	.07–.08(.08)	.18–.19(.18)
New South Wales	.40–.45(.43)	46–.52(.49)	.20–.23(.21)	.33–.36(.35)	.07–.08(.07)	.16–.18(.17)
Victoria						
Tasmania	.43–.48(.45)	.43–.48(.45)	.19–.22(.20)	.33–.37(.36)	.07	.15–.17(.16)

The origin of the disjunct and isolated island populations of *Tyto novaehollandiae* (*sorocula, cayelii* and *manusi* (Fig. 1—7, 6, 9) is still open to speculation (Schodde & Mason 1980). Clues to a possible evolutionary pathway of these forms may lie in the degree of similarity to *melvillensis* (5) and evidence of avifaunal links between the islands which they inhabit, keeping in mind that morphological similarities between these forms may be nothing more than convergence.

It seems reasonable to speculate that *sorocula* may have evolved in isolation from *melvillensis*-like stock, and in turn *cayelii* and *manusi* from *sorocula*, possibly during the latter half of the Pleistocene, when land masses extended far beyond their present boundaries (Hope & Hope 1976: 30, Kikkawa *et al.* 1981: 1698). The possibility of such a chance transoceanic crossing by *Tyto novaehollandiae* from northern Australia to colonize islands in the Banda Sea by way of the Tanimbar Islands could be considered unrealistic were it not for additional evidence, that other avian species have in the past (e.g. *Cacatua pastinator goffini, Geopelia maugeus*) and at the present day do still follow this route (Hartert 1901, Schodde & Mathews 1977), and, accordingly, that considerable avifaunal interchange has taken place in the past between the southern Moluccas (Buru) and the Tanimbar Islands (see Hartert (1901) for similarities between a number of species and subspecies from these islands).

However, *T.n. cayelii* of Buru does show some similarity to *T. inexpectata* of Sulawesi in having the white dorsal spots replaced by brownish ones. Geographical position (see Audley-Charles (1981) for discussion on past land connections between Celebes and Australo-Papua) and morphological similarity of *T. inexpectata* to *T.n. cayelii* suggests that *inexpectata* may have budded off much earlier and speciated from the *T. novaehollandiae* line.

The origin of *manusi* is more difficult to explain but it may have followed a northeasterly route from Buru around northern New Guinea via the Moluccas, to the Admiralty Islands (see Salomonsen (1976: 595–6) for a possible route). Rothschild & Hartert (1914) also suggest that *manusi* is nearest to *cayelii*. *T.n. manusi*, in my opinion, on the other hand, exhibits little or no morphological similarity to *T. aurantia*, from New Britain, although *T. aurantia* presumably originated and diverged from Masked Owl stock (Schodde & Mason 1981: 77).

If *T. novaehollandiae* did follow this suggested evolutionary route, it is possible that there are undiscovered populations on some of the islands around the Moluccas and the Vogelkop. There are a number of publications discussing collections from intervening locations throughout this region without reference to *T. novaehollandiae*, while few specimens of the races discussed above exist in collections. Küln, for example (Hartert 1901), whilst collecting on Timorlaut (Tanimbar Islands), did not procure any specimens of *sorocula*, and the paucity of specimens from islands north of Australia may suggest a number of possibilities, e.g. a lack of systematic collecting of night birds, the inaccessibility of likely locations, that populations of these subspecies may be low in number or that they have a very patchy distribution – or a combination of all these factors.

Tyto novaehollandiae calabyi subsp. nov.

Holotype. (Rijksmuseum van Natuurlijke Historie, Leiden) Reg. No. 42474, Field No. 305, adult ♂, Merauke (southern New Guinea—see Fig. 1), 22 April 1960, coll. A. Hoogerwerf. Measurements (mm) wing 305, tail 130, culmen (from cere) 24.3, tarsus 70.

Paratypes. (Rijksmuseum van Natuurlijke Historie, Leiden) Reg. No. 42475, ♀; (American Museum of Natural History) Reg. Nos. 425939, 425940—♂ and ♀ respectively.

Series studied. 2 ♂ ♂, 2 ♀ ♀; ♂, ♀ immatures.

Range. T.n. calabyi inhabits southern New Guinea, in the eucalypt savannahs between Merauke and the Fly River Delta (Fig. 1).

Diagnosis. T.n. calabyi differs from tropical island populations (*melvillensis,* *cayelii, sorocula* and *manusi*) in its large size and its coarser spotting and speckling of the dorsal surface. It is distinguished from *galei* by its darker dusky and tawny, and less coarsely mottled, dorsal plumage (Plate 2), and larger size (Table 1).

Although *calabyi* of southern New Guinea is said not to differ from *novaehollandiae* (Mees 1964, 1982), *calabyi* can be distinguished by its consistently darker dorsal plumage (4 adults, 2 immatures) when compared with 7 medium and 4 dark phase birds from the northern limits of *novaehollandiae*'s range. To date there are no dark phase birds with an extensive russet wash to the dorsal surface recorded from southern New Guinea. Moreover, in differing from *novaehollandiae, calabyi* exhibits a number of characters similar to *galei*: pale feather pattern to the lesser wing coverts, secondary and primary flight feathers (contrasting with the rest of the dark dorsal plumage), lack of feathering and hair to the lower portion of the tarsus and toes, and proportionally larger tarsi and smaller tails (Table 1). Although New Guinean birds are as large as nominate *novaehollandiae,* they differ in their larger culmen and tarsus and their appendage ratios (Table 1).

Etymology. This subspecies is named after Dr. John H. Calaby in acknowledgment of his support and encouragement to my work over the years and because of his deep past interest in this species.

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The nomenclature of *Buteo oreophilus*

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In 1914, Hartert & Neumann described a species of buzzard from Koritscha, Ethiopia, under the name *Buteo oreophilus,* giving as the range of this species the mountain areas of central, northeast, and east Africa. Sclater (1919) was the first to suggest that the resident buzzards of southern Africa might also belong to the same species (see also Roberts 1940, Courtenay-Latimer 1941). It was not until 1957 that Rudebeck formally described and named the South African segment of this resident buzzard as *Buteo buteo trizonatus,* type locality Knysna, Cape Province. Hesitantly, he followed Meinertzhagen (1951) in considering both *oreophilus* and *trizonatus* as conspecific with the Eurasian *Buteo buteo.* Since then the taxonomic affinity of these forms has been examined by many authors, resulting in widely varying conclusions. A. H. J. intends to discuss the taxonomy of the group (James in prep.), but before doing so there is a need to clear up the nomenclatural confusion that has arisen recently from Brooke's (1974) conclusion that in his opinion Rudebeck (1957) was not the first author to describe the South African form of *Buteo.*

In 1830, Andrew Smith started publication of a series of papers in the South African Quarterly Journal, which he apparently intended should form a kind of catalogue of South African birds. In trying to identify these birds he referred to Levaillant's *Histoire Naturelle des Oiseaux d'Afrique* (1799-1808) and to Daudin's *Traité élémentaire et complet d' ornithologie* (1800). The latter work gave binominal scientific names. After citing these, Smith gave careful descriptions of the material he had at hand. At the time these were not meant to constitute descriptions of new species (Mees 1967, Clancey *et al.* 1971), but they were later considered as such by him and also by other authors.

Among the species of *Buteo* found in South Africa, Smith (1830) listed *Buteo tachardus* (*Falco tachardus* Daudin, 1800) and *Buteo desertorum* (*Falco desertorum* Daudin, 1800). *Falco tachardus* Daudin is based upon Le Tachard as depicted on Plate 19 in Levaillant (published in 1799), and *Falco desertorum* Daudin on Le Rougri (Plate 17 in Levaillant 1799). Both names, and particularly *F. desertorum* have later been applied to *Buteo buteo vulpinus* Gloger, 1833, a migrant to South Africa. However, Hartert (1914:1125) was of the opinion that Le Rougri is unidentifiable [. . . Figment of fantasy! The fox-red upperparts, the description of the underparts, the beautiful yellow bill, especially mentioned in the description, void the use of the name *desertorum.* On top of all this, the miraculous animal should be resident in South Africa and breed there]; and that Le Tachard refers to *Pernis apivorus* (Linnaeus, 1758). Brooke (1974), however, was of the opinion that Hartert's conclusions were irrelevant and that Smith clearly described a recognizable species under a new name, using *Buteo* as the generic name instead of *Falco*. Brooke stated: "*Buteo tachardus* Smith, 1830 is an unequivocal description of what Rudebeck (1957, 1958) clarified under the name *Buteo buteo trizonatus*". Brooke's conclusion is primarily based on Smith's description of a small raptor with a clear white upper abdomen between the brown streaked and blotched breast and lower abdomen, which is similar to the ventral tri-zoned pattern in *trizonatus*. Also 2 of Smith's surviving specimens in the British Museum (Natural History) (BMNH) were identified by Rudebeck (1958) as belonging to *B. b. trizonatus*. The consequence of Brooke's view is that the long-established name *B. oreophilus* of East Africa becomes a subspecies of *Buteo tachardus* Smith, 1830, since the latter is the older name to apply to the species. In addition Brooke stated that Smith did not work outside Cape Province and that Knysna can be regarded as the restricted type locality. He suggested that one of the surviving specimens collected by Smith should be chosen as a lectotype if one was required.

After carefully reviewing Smith's description we concede it may, at least in part, be a description fitting *trizonatus*, but we cannot agree that it is an unequivocal description. Brooke quotes as significant Smith's description of the underparts; but this can apply to *trizonatus* only if we understand Smith's "posterior part of the belly" to be an area of the belly nearer the vent, thus construing that the "anterior" belly is unmarked. Smith, however, also mentions that in some specimens the breast and belly are almost divested of spots, while in others the whole underparts are densely covered with streaks or roundish blotches. These patterns can also characterize *B. b. vulpinus*, especially immatures, where the underparts may vary from being completely unmarked except for thin streaks to being completely marked with streaks or oblong blotches. The colour of the legs and toes are greenish yellow according to Smith but pale yellow to wax yellow or brownish (Rudebeck 1957) in *trizonatus*. Smith described the young bird as "below brownish red, with shafts of the feathers black". This certainly does not fit the description of an immature *trizonatus*. Smith stated further: "In most instances the tail is grayish brown, banded with blackish brown, yet in not a few is it deep chesnut (*sic*) or bright rufous, and distinctly banded transversely by numerous black lines". This unequivocally describes a *vulpinus* tail.

Furthermore, Smith remarks that *tachardus* "inhabits the whole of South Africa". This fits excellently the distribution of *vulpinus*, but hardly applies to *trizonatus*. With reference to *B. desertorum*, Smith said that he had never met with this species. This would be surprising if Smith had meant to describe *Buteo buteo vulpinus* under the name *desertorum* as Brooke (1974) will have it, since *vulpinus* greatly out-numbers *trizonatus*. During several seasons in South Africa, Rudebeck (1963) observed only 5 individuals of *trizonatus* compared to about 400 *vulpinus*. According to Roberts (1936), Smith spent at least 3 years in the Cape Province prior to 1830. It seems unbelievable that he never met with *vulpinus* during that time, but quite natural that he did not observe any bird answering the description of *Falco desertorum* Daudin, 1800, since such a species does not exist (Hartert 1914). It becomes clear that both *trizonatus* and *vulpinus* specimens were included in the series Smith identified as *B. tachardus*.

During a visit to the BMNH at Tring in 1982, A. H. J. was only able to locate 5 out of 8 of Smith's *Buteo* specimens registered there. According to the museum's register 5 *Buteo* specimens were received directly from Smith. These were listed as: 1845.7.6.54 *Buteo lagopus* (Natal); 55 *Buteo communis* (Natal); 57 *Buteo tachardus*; 60 *Buteo* (*tachardus*); 112 *Buteo mentalis*. Of these only numbers 54 and 60 were located after a thorough search through specimens of other genera and through all *Buteo* specimens. The names in the register are presumably from Smith's own labels. All 3 specimens registered in the Norwich Castle Collection (1955.6.N.2175,2176,2177), now incorporated in the BMNH, were found. Smith's original specimen labels were not available on any except for specimen number 60. There may be more specimens in other collections.

Specimen number 54, registered as *B. lagopus,* was identified by Rudebeck (1958) as *B. b. trizonatus*. Specimen number 60 was registered only as *Buteo,* but on Smith's original label *tachardus* was written in pencil on the front side, crossed out, but again written on the back. The rest of the label was written in black ink. This specimen is without doubt a melanistic *B. b. vulpinus*. The 3 specimens from the Norwich Castle Collection are all registered as *B. desertorum*. One, (No. 2175), was identified by Rudebeck (1958) as a ♂ immature *B. b. trizonatus,* as given on the specimen label; but in the register it was recorded as a ♀ immature. The wing length would seem to indicate a ♀. A. H. J. identified specimen 2176 as *trizonatus* and specimen number 2177 as clearly being a *vulpinus*. All measurements are shown in Table 1.

TABLE 1

Measurements of *Buteo* specimens collected by Sir Andrew Smith in South Africa, from the British Museum (Natural History). (*worn plumage)

Register Number and Species	Coll. No.	wing	tail	culmen	tarsus	bare tarsus	sex	age	identification
1845.7.6.54 *Buteo lagopus* (Natal)	—	329	163	—	67	—	–	ad.	*B. o. trizonatus*
1845.7.6.60 *Buteo* (*tachardus*)	46	388	205	—	75	40	–	ad.	*B. b. vulpinus*
1955.6.N.2175 *B. desertorum* ♀ im.	9	353	182	23.0	69	37	♀	imm.	*B. o. trizonatus*
1955.6.N.2176 *B. desertorum* ♀	10	359	184	23.0	70	32	♀	ad.	*B. o. trizonatus*
1955.6.N.2177 *B. desertorum* ♀ im.	11	346*	184	20.5	70	42	♂	imm.	*B. b. vulpinus*

Despite the fact that Brooke (1974), presumably acting as first reviser, clearly did not examine Smith's original material, he stated that Smith's name must be used. However, we are of the opinion that it should not. Most importantly, Smith's name *Buteo tachardus* is preoccupied. Vieillot (1823:1224) described a species of buzzard under the heading La Buse Tacharde. 21. *B.*(*uteo*) *Tachardus,* referring to Plate 19 in Levaillant (1799) and to *Falco tachardus* as published by Latham (1809), and he listed it under the buzzards with scantily feathered lores (p. 1217, "lorums un peu velus"). In view of the fact that Levaillant's Tachard is now generally accepted as *Pernis apivorus,* it is remarkable that Vieillot described *B.*(*uteo*) *Apivorus* under number 22 in the next section of his genus *Buteo,* which covers species with lores covered in small scale-like feathers (p. 1224, "lorums couverts de petites plumes très serrées, et en forme d'écailles"). We suggest that Vieillot's name must be considered as indeterminable but that whatever he may have had in mind in naming *Buteo tachardus,* the name was validly published 7 years before Smith applied it to a mixed series of *Buteo oreophilus trizonatus* and *B. buteo vulpinus*. *Buteo tachardus* Vieillot, 1823 was known in the 19th century and cited by Giebel (1872:516, in the synonymy of *Buteo vulgaris*=*Buteo buteo*), and by Sharpe (1874:345, in the synonymy of *Pernis apivorus*). The citation in Sharpe is confused by a printing error in the page number, which is given as 224. Moreover, the authors of the name are given as Bonnaterre et Vieillot. J. P. Bonnaterre died in 1804 and Vieillot alone was responsible for part 3 of the *Tableau Encyclopédique et Méthodique des Trois Règnes de la Nature— Ornithologie,* which appeared in 1823 (Sherborn & Woodward 1906).

If one is to accept Brooke's view, many problems are encountered. In picking a lectotype, all Smith's *Buteo* specimens must be considered and not just the 2 reported in Rudebeck (1958), as suggested by Brooke (1974). Since Smith's surviving series contains both *vulpinus* and *trizonatus,* either form could be chosen as a lectotype. However, we prefer to consider Smith's description of *Buteo tachardus* not only as not having had the intention of describing a new species, but also as one describing an unidentifiable taxon. Smith's series contains at least 2 separate taxa, and it even seems that those specimens now identified as *trizonatus* were identified by Smith under an array of names, and those under *tachardus* were in fact a misidentification of *Falco tachardus* Daudin. Therefore, strictly speaking *B. tachardus* Smith has no nomenclatural status (G. F. Mees *in litt.*). Consequently no choice of a lectotype is necessary.

We want to point out that Brooke's suggestion of restricting the type locality to Knysna in the southern Cape Province is stretching the evidence. According to Roberts (1936), Smith collected only in the western and northern Cape before 1830.

Stresemann & Amadon (1979) did not recognize *B. tachardus,* but listed it questioningly under *B. oreophilus,* although it could as well have been under *B. buteo vulpinus* (D. Amadon *in litt.*). We, similarly, conclude that Rudebeck (1957) validly described a new taxon, hitherto confused with *Buteo buteo vulpinus* and *Buteo oreophilus,* and that his name *Buteo trizonatus* must be used for the resident Mountain Buzzard of Southern Africa. Most will call it a race of *oreophilus* considering *B. buteo* specifically distinct.

We want to mention here another possible problem regarding the nomenclature of *Buteo oreophilus*. Temminck & Schlegel (1844:16) renamed the common buzzard of the Cape ("la buse commune du Cap") *Buteo capensis,* now generally accepted as a synonym for *B. b. vulpinus*. They referred to both le Tachard and le Rougri of Levaillant, which they considered to be the juvenile and adult of *B. capensis*. They also referred to *Falco tachardus* as published by Shaw (1826) and gave a short description of it, presumably based on 3 specimens at Leiden in the Rijksmuseum van Natuurlijke Historie (RMNH). While examining this series of syntypes, A. H. J. noticed that in fact one showed the typical three-zoned pattern of *B. oreophilus trizonatus*. The measurements confirmed the identification (Table 2). As the other 2 specimens are clearly *vulpinus,* we select one of the 2 *vulpinus* specimens as the lectotype: RMNH catalogue number 1. Thus the result is the retention of *Buteo capensis* as junior synonym of *Buteo b. vulpinus*.

On account of the consideration given above and in the interest of stability of nomenclature, an urgency apparently overlooked or neglected by Brooke, we conclude that the names *Buteo oreophilus* Hartert & Neumann 1914 for the African Mountain Buzzard and *Buteo oreophilus trizonatus* Rudebeck 1957 as its South African subspecies should firmly stand.

TABLE 2

Syntypes of *Buteo capensis* Temminck & Schlegel, 1844 at the Rijksmuseum van Natuurlylee Historie at Leiden

Museum	Number	Locality	age	wing	tail	culm.	tarsus	bare tarsus
RMNHL	2	Cape (Prov.); "Kneisna"	ad.	343	168	21.2	69	32
RMNHL	1	Afrique, aust.	ad.	348	169	21.0	71	—
RMNHL	3	Wolga, Russie	ad.	375	190	21.8	72	—

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A new antwren from northeastern Brazil

by D. M. Teixeira and L. P. Gonzaga

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In the early months of 1979, the Ornithological Section of the Museu Nacional began field work in the residual Atlantic Forests of northeastern Brazil. Our main goal was to locate and study the nominate form of the Razor-billed Curassow *Mitu mitu*, the most endangered Brazilian member of the Cracidae. Some areas of Alagoas were visited, including the "Serra Branca", county of Murici (c. 9° 15'S. 35° 50'W), a forest located on the lower slopes of the coastal "Chapada da Borborema" at 550m.

It was quite a surprise that our researches at "Serra Branca" led to the discovery of birds never reported north of the São Francisco river and, above all, to undescribed species. In another paper (Teixeira & Gonzaga, in press), we describe a new *Philydor* (Furnariidae) and now we describe a new Formicariid of the genus *Terenura,* naming it in honour of Dr. Helmut Sick, who introduced us to ornithology. For all references on colours we used Villalobos & Villalobos (1947), with citation of the respective code.

Orange-bellied Antwren **Terenura sicki** sp. nov.

Holotype. Museu Nacional-UFRJ No. 32048. Inactive ♀, from "Serra Branca", Murici, Alagoas, northeastern Brazil (c. 9° 15'S, 35° 50'W), collected 7 February 1979.

Distribution. Known only from the type locality. The first *Terenura* from northeastern Brazil.

Description of Holotype. Crown with black and pale yellowish buff (OOY-16-6°) bordered feathers, with a streaked aspect. The superciliaries, face and auriculars also pale yellowish buff, the last 2 lightly dotted with black. Sides of neck olive grey (OOY-12-3°). Mantle, rump and upper tail coverts chestnut (0-9-8°); tail olivaceous grey (0-8-1°). Lesser and median upper wing coverts black with light apical grey (0-13-1°) spots; greater wing coverts plumbeous (0-7-0) bordered with buff (0-16-5°). Primaries and secondaries ashy-black (0-6-1°) with grey borders and with a whitish basal stripe on the inner web. Tertiaries also ashy-black, but bordered with chestnut; scapulars as the mantle. Wing lining and under wing coverts whitish. Throat whitish orange (OOY-16-9°) slightly dotted with black. Breast the same, but almost plain and shaded towards orange (OOY-16-9°), underparts plain orange (O-16-11°). Iris brown, mandible brown, maxilla plumbeous, tomia pearl grey, tarsus plumbeous.

Measurements of Holotype. Exposed culmen 11 mm; wing (flat) 43 mm; tail 40 mm; tarsus 15 mm; total length 110 mm. Weight 6.5 g. Wing formula as in *Terenura maculata* (primaries numbered from inner to outer): p7, p6 and p5 are the longest primaries and are about the same size; p8 is slightly shorter than p7 and about the same size as p4; p9 is 3 mm shorter than p8 and p10 is almost 9 mm shorter than p9. Compared with the series of *T. maculata* studied (Table 1), the measurements of *T. sicki* show no significant difference.

TABLE 1

Measurements (mm) of *Terenura sicki* sp.nov. and *Terenura maculata* ♀♀ compared

	Terenura maculata ♀♀ (n=11)			*Terenura sicki* (holotype)
		$\bar{x}$	SD	
Wing (flat)	39.5–46	42.9	2.35	43
Tail	41–49	44.2	2.31	40
Tarsus	14–18	15.8	3.00	15
Exposed culmen	11–13	11.9	0.7	11

Diagnosis. Differs from all other *Terenura* in its conspicuous orange underparts. The general pattern of its plumage resembles *T. maculata,* which can be distinguished from *T. sicki* by the pale yellow (Y-19-6°) underparts, its light olive (YYO-9-7°) rump contrasting with the back, and by the white lesser upper wing coverts. Additionally, the immature of *T. maculata* is easily distinguishable from the adult *T. sicki* by its strong olivaceous tinge, the slightly streaked pileum and breast, and by the underparts being pale yellowish suffused with olive.

The other 4 species of the genus *Terenura* are Amazonian in range and are quite distinct in pattern from *T. sicki* and *T. maculata*. All of them show a plain pileum and in some the mantle and underparts are completely diverse in colour (see Meyer de Schauensee 1970).

Additional remarks. *T. sicki* seems to be an endemic of the middle-altitude forests of northeastern Brazil. This probably could explain its late discovery since only the coastal lowlands have as yet been well explored. Like *T. maculata, T. sicki* being arboreal and inhabiting the upper strata, it is difficult to locate. We saw it only 4 times. With its small size, it is able to move through the dense foliage looking for food amongst the leaves and between the debris fixed to the branches. Its diet includes small insects (Coleoptera, Blattaria), as the stomach contents of the holotype confirm. As true of many other Formicariidae, *T. sicki* often joins mixed flocks. Its vocalization seemed to us to be very similar to that of *T. maculata*, a quick sequence of notes "thíu, ti-ti thíu, ti-ti thíu, . . . ".

The avifauna of the forests of northeastern Brazil is very complex. There is well marked sympatry of meridional and Amazonian species as well as a core of endemic birds, the latter being more closely related to either Amazonian or to Atlantic Forest taxa. *T. sicki* is an example of the latter case, being apparently closely related to *T. maculata* from eastern Brazil (Espirito Santo and eastern Minas Gerais to Santa Catarina) to Paraguay and northeastern Argentina in Misiones (*fide* Pinto 1978). The 2 are allopatric in range, replacing each other at the São Francisco River, and compose a superspecies. The same is true of many other birds from Alagoas (Teixeira & Gonzaga in press; Pinto 1954).

The restricted known range of *T. sicki* raises doubts about its survival, as the State of Alagoas has had its original 35% of forested area reduced to 10%

since 1938 (Sick & Teixeira 1979). In any case, the establishment of the first protected areas for the northeastern Atlantic Forests is an urgent need.

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African Reed Warblers in northern Nigeria; morphometrics and the taxonomic debate

by R. Wilkinson and D. J. Aidley

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African Reed Warblers *Acrocephalus baeticatus* are widely distributed over much of southern and east-central Africa, but are apparently more local in the northern tropics (Hall & Moreau 1970). The discovery on the shores of Lake Chad of a population of *A. baeticatus* (formerly believed to be *A. dumetorum*—Ash *et al.* 1967) and the suggestion that *A. baeticatus* be considered conspecific with *A. dumetorum* (Fry *et al.* 1974), together with Clancey's (1975) reclassification of *A. baeticatus* as 2 parapatric species (*A. baeticatus* and *A. cinnamomeus*) has resulted in renewed debate with regard to the taxonomy of this difficult group (Dowsett & Lemaire 1976, Fry & Ferguson-Lees 1977, Devillers & Dowsett-Lemaire 1978).

Until recently African Reed Warblers were known from only 3 localities in Nigeria; at Malamfatori (Lake Chad), at Serti in southeast Nigeria and at Ibadan in the southwest (Elgood 1982). The newly discovered population at Jekara, some 30 km ENE of Kano, Nigeria (Wilkinson & Aidley 1982) is of interest in that it lies between the Lake Chad population, previously described as *A. baeticatus hopsoni* and thought to represent a unique gene pool (Fry *et al.* 1974), and the more southerly Nigerian populations, presumably *A. c. cinnamomeus* (see Clancey 1975, and maps in Fry *et al.* 1974, and Fry & Ferguson-Lees 1977).

As part of a larger study of the avifauna of Jekara Dam (12°40'N, 8°10'E), mist netting was undertaken, normally twice monthly, from October 1981 to October 1982, in paths cut in the *Typha*-dominated waterside vegetation. African Reed Warblers were caught in every month from October 1981 until June 1982, and again in October 1982. These were distinguished from the overwintering Palaearctic Reed Warblers *A. scirpaceus* by wing formula, *A. baeticatus* having P2 shorter than P6 rather than longer as in *A. scirpaceus* (Bannerman 1953). Numbering the primaries ascendantly from the outermost P1 inwards to P10 is followed in recording wing formulae. The shorter wing length of *A. baeticatus* also normally distinguished it from *A. scirpaceus*, but some overlap did occur and differences in wing formulae proved more reliable. A total of 37 individuals (excluding retraps) was handled and wing lengths (maximum-chord) were recorded for all of these; additionally morphometric data, including weight, tail-, tarsus- bill-lengths and wing formula were obtained for most of them. Description of colour in the field was considered to be unreliable and was not attempted for the Jekara birds.

TABLE 1

Measurements of African Reed Warblers *Acrocephalus baeticatus* from Arrigui (Niger), Malamfatori (Lake Chad), Jekara (N. Nigeria) and Darfur (Sudan). Means are given with range in parenthesis; all linear measurements are mm.

	Weight (g)	Wing	Tail	Tarsus	Bill
Arrigui 19°06′N, 12°55′E		54.7(53-57) N=11			
Malamfatori 13°37′N, 13°23′E	8.4(6.3-9.3) N=8	58.0(56.5-59) N=5	50.7(50-52) N=5	20.7(20.5-23) N=5	(16-16.5) N=5
Jekara 12°40′N, 08°10′E	8.9(7.8-12.5) N=35	56.7(54-62) N=37	47.5(44-55) N=23	22.3(21-24) N=26	15.6(14-17) N=23
Darfur Zalingei: 12°51′N, 23°29′E		53.8(50.5-55.5)	46.9(43-52)	20.4(18.5-22)	
Kulme: 12°35′N, 23°37′E		N=8	N=8	N=8	

Morphometric data.

Table 1 presents the data for the Jekara birds together with the published data of Fry *et al.* (1974) and Devillers & Dowsett-Lemaire (1981) for birds from neighbouring populations. In average wing-length and tail-length the Jekara birds are intermediate between the Lake Chad population of *hopsoni* and *cinnamomeus* from the Sudan. The mean tarsus measurements are larger for the Jekara birds than for any other series, but we cannot be sure whether these differences are real or reflect differences in the method of taking this measurement. Although *mean* values for tail and wing-lengths at Malamfatori are slightly larger than for the Jekara birds, all Lake Chad specimens fall within the range of measurements of Jekara birds with respect to tail-, wing- and bill-length, but many more birds have been measured at Jekara than elsewhere. It is possible that with bigger samples from Chad and Darfur the difference would not be significant. The range of weights suggests that the Jekara birds are somewhat heavier than their neighbours at Lake Chad. However, weights for 33 out of 35 Jekara birds fell within the range 7.8 – 9.8 g (mean=8.8), the 2 exceptions being one bird of 11.4 g on 3 May, and another weighing 12.5 g on 6 April. These 2 exceptions may have been females about to lay. Fry *et al.* (1974) suggest that African Reed Warblers at Lake Chad were ready to breed from April onwards.

TABLE 2

Wing formulae of African Reed Warblers *Acrocephalus baeticatus* from Arrigui (Niger), Malamfatori (Lake Chad), Jekara (N. Nigeria) and Darfur (Sudan)

	2nd primary falls	10th pry. shortfall Mean range	Wing point
Arrigui 19°06'N, 12°55'E	between 7th & 8th N=11	9.5(8-11) N=11	
Malamfatori 13°37'N, 13°23'E	equals 6th-7th N=5	(9-11) N=5	P3 N=1
Jekara 12°40'N, 08°10'E	between 6th & 10th (mean 8, median 8) N=29	8.4(6-10) N=24	P3-4/5 N=29
Darfur Zalingei: 12°51'N, 23°29'E Kulme: 12°35'N, 23°37'E	between 6th & 8th	(5-8)	4?*

Note. *From Fig. 2 in Fry *et al.* (1974).

Of 29 Jekara birds examined for wing formula (Table 2), the second primary fell between the 6th and 7th or equalled the 7th in 9 birds, between the 7th and 8th or equalled the 8th in 15 birds, and exceeded the 8th in 5 birds. In the 5 specimens from Lake Chad examined by Fry *et al.* (1974), the second primary equalled the 6th – 7th. Thus in this respect the Jekara birds more closely approach those from Arrigui and Darfur than those from Lake Chad. A further difference in wing formulae between the Lake Chad skins and the Jekara birds is suggested by the type specimen of *A. b. hopsoni,* which has the wing point at the 3rd primary (Fry *et al.* 1974), rather than, as normally in the Jekara birds, at the 4th primary (22 of 29 birds examined), and only once at the 3rd primary. In the latter case the bird was also aberrant for some reason in having P4 shorter than both P3 and P5, perhaps indicating a failure of this feather to grow normally. With regard to the 10th primary shortfall (*sensu* Fry *et al.* 1974), the range for the Jekara birds bridges that between the Arrigui and Lake Chad specimens and those from Darfur.

Discussion

We have no skins of the Jekara birds, but in defining the Lake Chad population as *Acrocephalus baeticatus hopsoni,* Fry *et al.* (1974) state that the race is less rusty and lacks the rufous wash of *cinnamomeus*. In contrast, Devillers & Dowsett-Lemaire (1978) failed to find any difference in colouration between skins from Lake Chad, Arrigui (Niger) and *cinnamomeus* from Darfur (Sudan). *A. b. hopsoni* was secondly differentiated by Fry *et al.* (1974) in having a longer wing and a greater 10th primary shortfall than *cinnamomeus*. However, since the Lake Chad specimens fall within the range established for Jekara birds with respect to tail-, wing- and bill-lengths it could be argued that the Jekara population is *hopsoni*. On the other hand, the average wing- and tail-lengths of the Jekara birds were intermediate between those of *hopsoni* and *cinnamomeus*. Fry & Ferguson-Lees (1977) comment on a cline in wing-length in *cinnamomeus,* with the more northerly populations approaching *hopsoni* in this respect. We suggest that *hopsoni* continues this cline and question the ecological isolation of this race. In agreement with this suggestion we note that in the measurements of the 10th primary shortfall, the range in the Jekara birds bridges those of the Chad and Arrigui series and the *cinnamomeus* specimens from Darfur. Although we remain cautious of the above comparisons of wing formulae (these may differ between live birds and museum specimens—Mead 1977), when considered together with the other data we must concur with Devillers & Dowsett-Lemaire (1978) in questioning the validity of *hopsoni*.

The Jekara population, although some 550 km from Malamfatori, Lake Chad, must cast doubt on the ecological isolation of the Lake Chad population. Jekara dam is a man-made, construction, which was completed in October 1976. The presumably recent invasion of this habitat attests to the mobility of these small warblers, a view supported by their apparent seasonal occurrence at Lake Chad (Fry *et al.* 1974). Similar waterside habitats that may hold *A. baeticatus* occur in other areas of Northern Nigeria between Kano and Lake Chad but to our knowledge none has been systematically worked.

Finally we suggest that the apparent similarity between the most northerly populations in the northern tropics and those from southern Africa may represent convergent evolution of these populations. Contrary to Fry & Ferguson-Lees (1977), we consider this the most probable of the 4 explanations they offer for this similarity. If Clancey's (1975) reclassification of *A. baeticatus* as 2 species is adopted, we would place '*hopsoni*' and similar populations with the northerly *A. cinnamomeus* and not, as previously suggested by Fry & Ferguson-Lees (1977), with the southerly *A. baeticatus*. However, in the absence of more certain data we concur with the latter authors that all African Reed Warblers may presently be best represented as a single polytypic species.

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First record of Great Knot *Calidris tenuirostris* in Oman, Eastern Arabia

by Ben F. King and Michael D. Gallagher

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At 0730 on 23 September 1982, at West Khawr (an estuary), Salalah, in Dhofar, the southern province of the Sultanate of Oman, we identified a Great Knot *Calidris tenuirostris,* a species not previously acceptably identified in Oman. The bird was near other waders but very shy, and as we approached it flew to the sandy shore of the Arabian Sea and joined several Bar-tailed Godwits *Limosa lapponica.* When flushed from there it flew strongly up the coast. It was about the size and coloration of a nearby Grey Plover *Pluvialis squatarola,* but had a longer and strongly tapered bill, noticeably broad at the base, narrow and very slightly decurved at the tip, and had a thinner neck and smaller head. The axillaries were white. It fed with the body held horizontally while deliberately probing with the bill. When near a Common Redshank *Tringa totanus,* the Knot's body appeared larger and its legs shorter. It was much larger and heavier than a nearby Ruddy Turnstone *Arenaria interpres,* and than several Curlew Sandpipers *Calidris ferruginea.* Its call was a low hard *chuck,* repeated rapidly when taking wing and less rapidly when standing. Its greyish upper parts, as early as this date in autumn, would indicate that the bird was an adult in basic plumage (Dement'ev *et al.* 1951, and Humphrey & Parkes 1959).

Later on the same day, at 1645, we found 2 Great Knots at another estuary, Khawr Rayzut, c. 10 km west of West Khawr. We observed them for about 1 hour at 100 m with a 25x telescope. One was in the same plumage as the Great Knot seen that morning, but appeared to have more distinct grey spots on the upper breast, which suggested that it was not the morning's bird. The other bird had generally much darker upper parts than its companion, and had a heavy "necklace" of blackish spots across its upper breast, indicating it was an adult in partial alternate plumage. Detailed descriptions of all 3 birds are available in the Ornithology Dept. of the American Museum of Natural History in New York.

B.F.K. has had considerable experience with this species in Korea, Thailand, Sri Lanka and Pakistan. As far as we know, this is the first certain record of the Great Knot for the entire Arabian Peninsula. There are, however, 2 earlier Oman possible sight records from Masirah Island. T. D. Rogers made one sighting on 30 Nov 1974 (Griffiths & Rogers 1976) and T. D. Rogers and C. A. Pomeroy another on 6 Dec 1975 (Rogers *in litt.*). While the descriptions of these sightings are suggestive of Great Knot, the birds were not positively identified at the time and they are not confirmable.

The Great Knot breeds in NE Siberia and winters from southern Asia to Australia (Dement'ev *et al.* 1951, Ali & Ripley 1980, Condon 1975). It is nowhere common in winter and its main wintering grounds are unknown, the westernmost records being from the Makran and Sind coasts of Pakistan (Ali & Ripley 1980), where they are uncommon. Although Vaurie (1965) states that the Great Knot has occurred in the Persian Gulf, Scott (1975) lists no records for Iran, and Bundy & Warr (1980) list no records for the southern shores of the Gulf. The proximity of the Oman coast to the

Pakistan coast, and the fact that the Great Knot must fly in a southwesterly direction to reach Pakistan from its breeding grounds, would lead one to expect that it might well reach the Arabian Peninsula at least occasionally. A recent sight record as far west as Morocco on 27 Aug 1980 (Lister 1981) lends support to this expectation. Further, a flock of 70 Great Knots that B.F.K. observed near Karachi on 11 Mar 1981 had not been observed there previously that winter, suggesting that they had wintered farther south. The fact that the Great Knot has occurred as far south as southern Australia and Tasmania (Condon 1975), also suggests the possibility of its occurrence in winter to the south of Oman, on the east African coast. On migration and in winter, B.F.K. has usually found it on coastal mud-flats and sand-flats, including tidal creeks.

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Reappraisal of variation in the nightjar *Caprimulgus natalensis* Smith

by R. M. Harwin

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Huxley (1964) listed the Caprimulgiformes as an order in which polymorphism was absent, evidently overlooking its occurrence in *Caprimulgus donaldsoni,* which had already been documented by Mackworth-Praed & Grant (1952). More recently, Benson & Colebrook-Robjent (1977) have shown that it occurs in *Caprimulgus pectoralis,* and in the course of preparing the section on the Caprimulgidae for Volume 3 of *The Birds of Africa* (Urban *et al.* in press), I came to the conclusion that the grey forms of *C. natalensis* are better considered as colour-morphs rather than as distinct subspecies. Of these forms, White (1965) remarked "Geographical variation is not fully understood, very similar reddish populations having a wide, broken range, with greyer populations intervening".

C. natalensis is a small, distinctively marked, short-tailed nightjar with robust legs and feet, inhabiting short, moist grasslands from Liberia to Kenya and thence south to Natal. The colour-pattern consists of large black or brown spots on a rufous-buff or greyish ground. It is variously known as the White-tailed or Natal Nightjar, neither name being particularly appropriate. White in the tail is limited to the 2 outer pairs of rectrices and the undertail coverts, while the Natal population is an isolated one, whose habitat has, in any case, been very largely destroyed by sugar cane culture. Cyrus & Robson's recent "Bird Atlas of Natal" (1980) shows it surviving only in Zululand and the extreme south of Natal; however, it almost certainly extends to southern Mozambique—probably even further up the Mozambique coast. I suggest a more appropriate name is "Swamp Nightjar", referring to its chosen habitat.

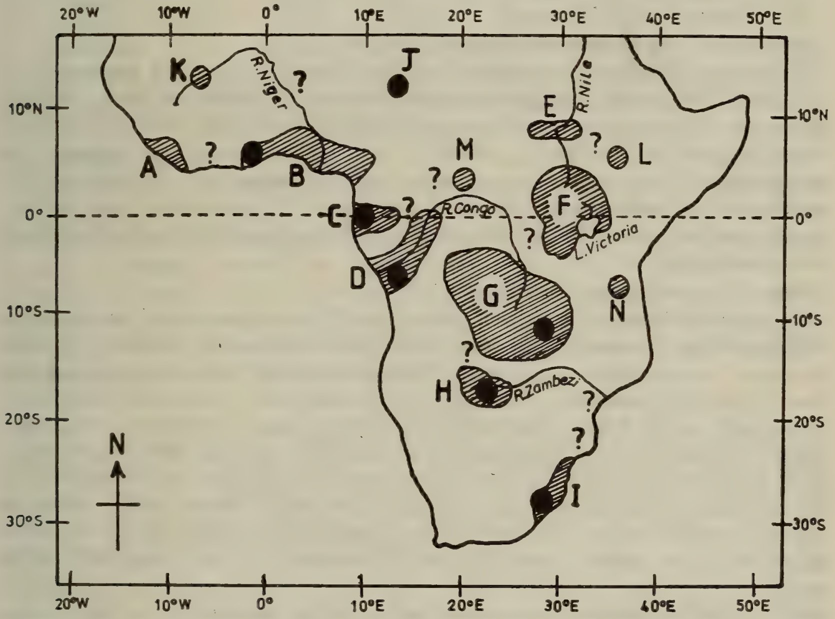

Fig. 1. Sketch map showing distribution of *Caprimulgus natalensis* and the areas inhabited by populations A to N (see text and Table 1). Circles represent isolated localities. Blacked in circles indicate the type-localities of 7 described subspecies, question marks possible but unproved occurrence. Adapted with permission from *The Birds of Africa*. Vol. 3 (Urban *et al.* in press).

The range of the species as a whole is much broken up, and it is perhaps not surprising that 7 subspecies should have been described. A study of the distribution map in Snow (1978) shows that there could be as many as 14 discrete populations (5 known from a single locality and 7 having received subspecific names) as follows (Fig. 1):–

A. Liberia.
B. Southeast Ghana, coastal Togo and Benin, southern Nigeria and West Cameroon ("*C. n. accrae* Shelley").
C. Gabon ("*C. n. gabonensis* Alexander").
D. Savannas along lower reaches of the Congo River ("*C. n. fulviventris* Hartlaub").
E. Bahr-el-Ghazal, Sudan; separated from F by the Sudd.
F. Region around Lake Victoria and upper Nile (Uganda, Rwanda and adjacent parts of Sudan, Zaire, Kenya, Tanzania and Burundi).
G. Southern Zaire and northern Zambia ("*C. n. mpasa* Smithers").
H. Caprivi Strip, northern Botswana and extreme southwestern Zambia ("*C. n. carpi* Smithers").
I. Coastal Natal and southern Mozambique ("*C. n. natalensis* Smith").
J. Lake Chad ("*C. n. chadensis* Alexander").
K. Upper Niger, Mali.
L. Southwestern Ethiopia.
M. Bend of the River Oubangi, northern Zaire.
N. Southwestern Tanzania.

Populations J to N represent single localities.

I have examined 80 specimens of *natalensis* (35 ♂♂, 44 ♀♀ and 1 unsexed) in the collections of the British Museum (Natural History) and the National Museum of Zimbabwe, and this paper attempts an explanation of the treatment adopted in *The Birds of Africa*. It will be appreciated, of course, that 80 specimens is by no means a large sample, particularly considering the number of populations involved. Nevertheless, I believe that only 2 subspecies are recognisable, and the grey populations are nothing but localised colour-morphs.

VARIATION IN GROUND COLOUR

I agree with White (1965), who, in uniting *C. n. chadensis* and *C. n. gabonensis* with nominate *C. n. natalensis*, stated "I doubt whether the included populations can be separated on colour". White might well have gone further and also included *fulviventris*, of which he commented "doubtfully distinct", *mpasa* and *carpi*. When describing the latter 2 taxa, Smithers (1954a and 1954b) compared them with nominate *natalensis*, but not with the populations of Zaire and Uganda. I have only examined 2 specimens of *carpi*, which are, as Smithers claimed, of the very grey form. M. P. Stuart Irwin, however, informs me that some years ago he examined 3 males collected on behalf of the Smithsonian Institution at Xugana in Botswana, about 250 km SW of the type locality of *carpi*, and observed that all were sandy coloured. Both the *carpi* which I examined were also males, while 13 out of 17 *mpasa* were females. One cannot, therefore, discount the possibility of sexual differences in these variable populations. Until a fuller examination of all populations from the Upper Nile to Ngamiland is undertaken, only one trinomial should be applied. All are probably best included with nominate *natalensis*. If distinct from the Natal population, the earliest name is *C. p. fulviventris* Hartlaub.

C. n. accrae of coastal West Africa is darker and duller and is the only subspecies clearly separable from nominate *C. n. natalensis* on colour.

VARIATION IN SIZE

Sex difference

Published figures (Chapin 1939, Mackworth-Praed & Grant 1952, 1962, 1970, White 1965) do not differentiate between the sizes of males and females, implying that there is no significant difference. My own measurements showed that the wing-lengths of 35 males varied between 148 and 162 mm (mean 156.2), and of 44 females between 145 and 167 mm (mean 153.8). In Table 1 therefore, I have likewise not distinguished between the wing-lengths of the two sexes.

TABLE 1

Wing measurements of populations A to J of *Caprimulgus natalensis* (see text)

Population	Putative subspecies	No.	Range	Mean	Wing-lengths as given by Chapin (1939)	M.-P. & G. (1952,'62,'70)	White (1965)
A/B	*accrae*	7	148–155	150.7	146–154	146–150	146–154
C	*gabonensis*	1	149	149	138–147	137–144	138–152
D	*fulviventris*	—	—	—	154	154	—
E	*chadensis*	15	146–162	154.9	147–159*	146–166*	147–163*
F	*chadensis*	22	146–161	153.0	147–159*	146–166*	147–163*
G	*mpasa*	17	148–167	159.4	—	156–167	156–167
H	*carpi*	2	149–164	156.5	—	155–166	—
I	*natalensis*	10	145–162	155.3	149–163	150–167	147–163*
J	*chadensis*	5	145–159	151.4	147–159*	146–166*	147–163*

*Chapin, Mackworth-Praed & Grant included populations E, F and J under the name *chadensis*. White included them under *natalensis*.

Geographical difference

Table 1 shows the range of my measurements, compared with those given by Chapin, Mackworth-Praed & Grant, and White (some of which may have been repeated from an earlier author). It will be seen that there is general agreement, apart from Population C, of which I examined only one specimen. It is possible that the latter population, "*C. n. gabonensis*", may be separable on account of smaller size, as is the Gabon population of *C. fossii*, but on the basis of one specimen which appears to be at the upper limit of the species range, I cannot express an opinion.

CONCLUSION

In the present state of knowledge, it is advisable to admit only the 2 subspecies of *Caprimulgus natalensis, accrae* of coastal West Africa, with nominate *natalensis* occupying the remainder of the range of the species. The Gabon population may represent a small subspecies, but other subspecies named heretofore are based on colour-morphs.

Acknowledgements. I should like first to express a debt of gratitude to the late Con Benson, who guided my nightjar studies, but died before the preparation of this paper. I thank Mr. I. C. J. Galbraith and Mr. H. D. Jackson for permission to examine the collections of the British Museum (Natural History) and National Museum of Zimbabwe respectively. Dr. C. H. Fry and Mr. M. P. Stuart Irwin read and commented on a preliminary draft of this paper. I also acknowledge the permission to use the accompanying map from Messrs Academic Press Ltd.

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The spelling of *Semioptera wallacii* (Paradisaeidae)

by Mary LeCroy

Received 29 April 1983

I believe that some comment on McAlpine's (1979) article on the spelling of several names in the family Paradisaeidae is in order. He proposes to use the spelling *Semeioptera wallacei*; this spelling was used in the *Literary Gazette* report concerning the meeting of the Zoological Society of London at which Gray proposed both the name *Semioptera* as the subgeneric name and *wallacii* as the specific name of Wallace's Standard-wing Bird of Paradise. This *Literary Gazette* was published (March 1859) before the *Proceedings* of the meeting in question (June 1859) and contained a description of the bird. To further complicate matters a report on the meeting also appeared in *Ibis* (April 1859: 210) before the *Proceedings* were published but in which the *Literary Gazette* article was quoted.

I have not seen the original *Literary Gazette* article, but McAlpine says that the spelling there was *Semeioptera* for the subgenus (later elevated to generic rank) and *Wallacei* for the species. In the *Ibis* article, within the quotation from the *Literary Gazette,* the name is spelled *Semioptera* for the subgenus and *wallacii* for the species, as it is in the rest of the *Ibis* article itself. In the *Proceedings of the Zoological Society of London,* published in June 1859, Gray spelled the name as *Semioptera* for the subgenus and *wallacii* for the species. Gray obviously intended the spelling to be *Semioptera wallacii,* and I consider the spelling in the *Literary Gazette* a misspelling. Nevertheless, as McAlpine says, there was included a recognizable description of the bird. However, as far as I have been able to determine, the spelling *Semeioptera* has never been used in the literature in over 120 years and, as *Wallacei* is only a variant spelling of Wallace's name, I am petitioning the International Commission on Zoological Nomenclature to suppress the names *Semeioptera* and *Wallacei* in reference to Wallace's Standard-wing Bird of Paradise and to conserve, in the interest of nomenclatural stability, the spelling *Semioptera wallacii,* which I believe was Gray's intended spelling.

I would also like to point out that while the citation for the description of

Semioptera wallacii in Gilliard (1969: 126) is not correct, as Gould did not describe the bird, the plate of Wallace's Standard-wing Bird of Paradise in Gould's (1859) *Birds of Australia Supplement* was the second one (Roman numeral II, not Arabic ii) in Part 3 of the *Supplement* and is so listed on the cover of the third part, which is bound into the American Museum copy. "Part 3" was omitted from the reference in Gilliard. Plate 57 is the number of the plate in the recommended final binding sequence, as stated by McAlpine, and no reference should be made to parts if that number is used. According to the cover of Part 3, it was issued on 1 September 1859. This postdates all of the publications relevant to Gray's description cited above.

In my opinion the spelling *Paradisaea* is correct. In Linnaeus (1758: 83) the spelling *Paradisea* is a *nomen nudum* as no description is included, and it is not part of the Index. In the same work (p. 110) where the description occurs, the spelling is *Paradisaea*. Furthermore, the spelling is unchanged in the 10th revised edition of 1760. Linnaeus, in his subsequent 12th (1766) edition cannot be construed as the first reviser (see Article 24 a1 of the *International Code of Zoological Nomenclature*). When later authors have used the spelling *Paradisea* they have quoted the original description as Linnaeus, 1766. As the bird was obviously described in Linnaeus, 1758, p. 110 and spelled *Paradisaea,* this is the spelling which should be used.

Acknowledgements. The late Eugene Eisenmann was a source of encouragement and much assistance in the preparation of the first draft of this manuscript. I would like to thank Bruce Beehler and Dr. Lester L. Short for their comments.

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The subspecific name of the Common Paradise Kingfisher *Tanysiptera galatea* from Halmahera Island, North Moluccas (Maluku Utara), Indonesia

by S. Dillon Ripley

Received 10 May 1983

In reporting on a collection of birds made by my wife and myself on Halmahera Island (Ripley 1959), I discussed the Paradise (Racquet-tailed) Kingfishers *Tanysiptera galatea* of the Northern Moluccas with special reference to new material we had collected on Halmahera and Batjan islands.

Birds of this region had been described originally as *Tanysiptera margarethae* (Heine 1859), the type locality subsequently identified as Batjan by Hartert (1903). Subsequent to Heine's paper G. R. Gray (1860) erected the name *Tanysiptera isis,* based on material collected by A. R. Wallace from "Batchian" (=Batjan) and "Gilolo" (=Halmahera).

In 1959 I separated the Batjan and Halmahera populations taxonomically. Restricting the type locality of *isis* Gray to Halmahera, I applied the name *T. g. isis* to the subspecifically distinct population on that island. However, close examination of the description of Gray (1860), describing Wallace's collecting stations, shows that the material on which *isis* was based originated in fact from Batjan, not Halmahera. This is reaffirmed by Warren (1966). As a result, *isis* becomes a junior objective synonym of *margarethae* and is not available. This leaves the Halmahera population without a name or type specimen.

I therefore propose that the Halmahera population be named:

Tanysiptera galatea browningi subsp. nov.

Holotype. U.S.N.M. No. 571751, male, skull ossified, collected 18 May 1981 by Paul M. Taylor at Kampung Pasir Putih, Jailolo District, Halmahera Island (near sea level).

Distribution. Halmahera Island.

Diagnosis. Comparing a series of birds collected on Halmahera with material from Batjan, I have noted that the birds from Halmahera have an ultramarine crown only very narrowly bordered on the sides with cobalt which forms a supra-ocular stripe. In contrast, birds from Batjan have a cobalt stripe which is much more pronounced, being broad, extending onto the crown and making a noticeable nuchal ring (cf. Ripley 1959). Additionally, the Batjan birds show more purple on the crown. These population differences were checked against material that I collected in 1954 as well as new material collected by Paul M. Taylor, and deposited at the U.S. National Museum, and the comparisons reaffirm the validity of these inter-island differences (*contra* Mees 1964).

Measurements of the type. Wing 97.5 mm (chord), tail 170 mm, bill from base 38 mm, tarsus 16 mm.

Acknowledgements. I am pleased to name this new subspecies in honour of M. Ralph Browning, of the National Bird Laboratories, U.S. Fish and Wildlife Service, who very kindly brought this taxonomic problem to my attention. Thanks are also due to C. G. Sibley, for loan of material in his care at the Yale Peabody Museum, New Haven, USA.

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